



**MOUNTAIN FRESH . . . OCEAN BATHED**

*Climate at home*

THE FOX FURNACE COMPANY, ELYRIA, OHIO

**M**AN'S first attempt at conditioning the air was made in heating the air. Little attention has been paid to the condition of air in homes during winter, as long as the air was sufficiently warm.

As heating methods improved, sanitation standards advanced, and as medical science progressed, sickness and disease during the winter months — the heating season — instead of decreasing, have increased at an alarming rate.

This has led to the conclusion which practically everyone suspected: Namely, that the dried out, stagnant atmosphere of American homes was dangerously unhealthy. And that heating the home also played a minor part in making it a comfortable, invigorating, inviting place in which to spend 80% of our lives.

This condition evidences the need for a radical change in heating methods. And with the requirements definitely known, science and engineering have collaborated to supply them with the Air Conditioning System which creates an ideal atmosphere in the home. The Air Conditioning System differs from the old fashioned heating plant just as the balmy climate of Southern Florida and Southern California differs from the dry, burning weather of the equator.

The Same Air Conditioning System that safeguards health in the winter can be equally useful in the summer. For it can cool the air and remove the excessive humidity. On oppressive days and nights it can automatically maintain the temperature which you find most comfortable.

There is no longer any need to go south in the winter and to the mountains or shore in the summer — with the modern Air Conditioning System creating a Mountain-Fresh, Ocean-Bathed Climate at home.

## **THE FOX FURNACE COMPANY**

ELYRIA, OHIO

A DIVISION OF  
**A** MERICAN RADIATOR & **S** TANDARD SANITARY  
CORPORATION

**SUNBEAM**  
**AIR CONDITIONING UNIT**



# WHAT *is* . . . . AIR CONDITIONING?



**A**IR CONDITIONING is the science of duplicating in the home a healthful, wholesome atmosphere. It recognizes that dry heat, stagnant and polluted air, in winter—and sweltering weather in summer—is not a fit substitute for an ideal atmosphere. This modern system completely conditions the air by:

1. Warming it to the proper temperature in winter;
2. Humidifying it to the proper degree in winter;
3. Filtering out dirt, dust, bacteria and foreign matter, the year 'round;
4. Circulating the air, providing healthful ventilation the year 'round;
5. Cooling the air in summer;
6. Dehumidifying the air in summer.

Winter Air Conditioning is vital to good health. Summer Air Conditioning, while required for a

shorter period in most sections, is highly desirable.

To obtain a climate as perfect as that which you can enjoy in an Air Conditioned home, you must journey to a very few select places which nature has seen fit to favor particularly, and at which congregate those who can afford to leave behind the discomforts of disagreeable climatic conditions.

In only one respect is there any similarity between heating systems and Air Conditioning. Both supply heating. It is beyond the ability of the heating system to do anything to make the air, to which you owe your continued existence, moist, pure, clean and stimulating during the winter season.

Nothing in life is as important as the air that surrounds us. 60% of our energy comes from the air, 40% from food and drink. The average person inhales 35 pounds of air each day, or about 5 times the weight of food and water consumed.



## COMFORTABLE WARMTH

# IN *Abundance* IN WINTER

**T**HE first requirement for a perfect climate is delightful warmth — warmth that soothes and caresses you. And this is the kind of warmth that you can expect with the Sunbeam Air Conditioning System. It circulates the air so gently through the registers into each and every room that you are unaware of its entrance. But you are conscious of one thing — that you have never spent a winter so comfortably.

Part of this comfortable feeling is due to the purity of the air and its refreshing moistness. Part is due to uniform distribution of the warmth. Much of the comfortable feeling, however, is due to the lower

temperature you can maintain in the air conditioned home. You need not maintain a high temperature, to which you have been accustomed, and which has a weakening and irritating effect on the human system.

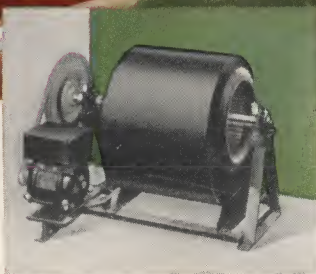
To the thrifty, the comfortable heating of the Sunbeam Air Conditioning System has a special appeal. You burn less fuel when you can maintain a lower temperature. A Sunbeam Air Conditioning System is not a luxury. On the contrary, it is difficult to name anything that is more of a necessity, especially in a home with babies, little children, or where any member of the family is not in the best of health.





T H E   C O N D I T I O N E D   A I R   I S

P O S I T I V E L Y   *Forced*   T O   E V E R Y   R O O M !



Above is the electrically driven blower which delivers the conditioned air, under pressure, instantly and uniformly to every room in the house.

If you have had experience with any rooms that "just could not be heated on cold days or when a strong wind was blowing," you will certainly enjoy the Sunbeam Air Conditioning System.

If some of the bedrooms are chilly — if halls are drafty — if half of the living room is warm and the other half cool — if the bathrooms are not the warmest rooms in the house, it will be difficult for you to realize the transformation that the Sunbeam will make. The electric blower positively forces the conditioned air to every corner of every room without fail, in spite of zero weather and penetrating winds.

#### Localized Temperature Control—

Where it is desirable, temperature may be automatically regulated from two, three or more different sections in the Sunbeam Air Conditioned resi-

dence, by placing thermostats in rooms located in each section of the house. Thus, if one room, a solarium for example, or one wing of a large, rambling house cools more quickly because of greater exposure, or high wind velocities, Sunbeam Localized Temperature Control permits the delivery of conditioned air to maintain the proper temperature in this room or section, without overheating the balance of the house and wasting fuel.





YOU BREATHE  
*Moist*  
HUMIDIFIED AIR

During your stay at the seashore, in the mountains, in the pine woods, your greatest enjoyment comes from breathing deep drafts of the fresh, moist, fragrant air. How good it feels. What a pleasant sensation as it fills your lungs. Makes you sleep more soundly. Gives you a better appetite. Soothes tense nerves. Restores your energy.

Did the air in your home on any winter day ever give you the same sensation? The reason it did not, is that the air in your home probably has a lower relative humidity, than the air in Death Valley.

Cold air can hold practically no moisture. Warm air can hold — and should have — considerable moisture. Nature increases the moisture content

Humidity is regulated automatically by a room control instrument. Water sprays are so located that the moisture is equally distributed and completely absorbed by the air. This humidifier has the capacity to maintain the correct relative humidity during the heating season in any climate.

of the air in the summer months. But when air is heated artificially, moisture must be added.

The correct relative humidity (air saturated with moisture has a relative humidity of 100%) has been found

to be between 40% and 55%. The relative humidity in the average home in weather 20° above zero is between 10% and 25%. This thirsty air extracts moisture from our bodies, dries out the mucous membranes of the nose and throat, and makes respiratory diseases so prevalent. Each winter day, depending on the size of your home, 5 to 25 gallons of water should be added to the air. Moist air preserves furniture, wood work, paintings, musical instruments, antiques, objects of art and plants, as well as your health.



Y O U   B R E A T H E

*clean  
filtered  
purified*   **A I R**

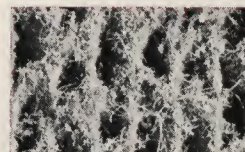
**Y**OU know that there is a large amount of dirt and soot in the air because you see it, because it necessitates extra work. You are continually dusting. Measurements have shown that one to five tons of soot are deposited daily in an average city for every square mile of area. Every housewife knows the external effect of dust-laden air.

The internal effects are more serious. You breathe, each day, more than 400 cubic feet of air. Estimate the amount of polluted foreign matter suspended in the air, which has gained entrance to your lungs. This foreign matter includes bacteria and germs, which attach themselves to dust particles. Medical authorities realize how dangerous this has become. Dr. Bundesen, Health Commissioner of Chicago, states that 60% more people are dying from respiratory ailments caused by contaminated air, than all other diseases.

Meats and foods are inspected; milk is pasteurized; water is filtered for your protection. Now the Sunbeam Air Conditioning Unit purifies the air you breathe. When the air passes through the system, every few minutes, filters remove at least 90% of suspended matter. The conditioned air is free from dust, soot and germ colonies. And if you suffer from hay fever or asthma, you will be pleased to know that Sunbeam Conditioned Air is virtually devoid of pollen and other protein impurities which cause and aggravate these maladies.

Notice the difference between an air conditioned room and an ordinary room. A shaft of sunlight will show you thousands of particles suspended in air that is not conditioned.

Opposite is a section of a clean filter. Alongside is the same filter after a few months in service. Dirt, germs and pollen in the air that enters into your home are eliminated immediately before the air is distributed.





## AN AIR CONDITIONED HOME

# IS A *Ventilated Home*

**D**O you become drowsy and tired in the evening and lose your energy after sitting around for a short period? Lack of ventilation is one of the causes for this feeling. In spring and summer when windows and doors are open and the air circulates freely through the house, you don't have that oppressed feeling every evening.

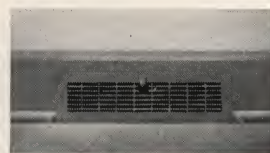
In building or buying a home most people plan or seek one with "through ventilation" when the windows are open. This is fine. But during the heating season with windows tightly closed to keep out the cold, there is no ventilation. And it is during the winter months that you have your greatest need for it!

Ventilation is demanded by law, in schools, theatres, and public buildings. You have often seen the grilles

and registers through which the air is changed. The Sunbeam has the same equipment (smaller in size) for providing ventilation, that you find in large buildings. It gives you a change of air every 10 to 15 minutes.

The outside air which filters into the home around windows and doors is immediately drawn into the system through recirculating grilles. As it is conditioned, it circulates through the warm air or discharge registers. In the average house a sufficient amount of outside air enters by infiltration each hour to displace and expel all the "inside" air. This outside air is only valuable if it is circulated throughout the house.

Any air containing odors, as is often the case in kitchens or other rooms, can be conveniently vented or discharged out-of-doors.



A Warm Air Register

Air circulating through these registers duplicates the ventilation obtained in large public buildings. Registers and grilles can be installed in baseboards, or walls, and can be finished to harmonize. They do not deprive you of any floor space, nor do they interfere with the most artistic arrangement of your furniture.

A Recirculating Grille







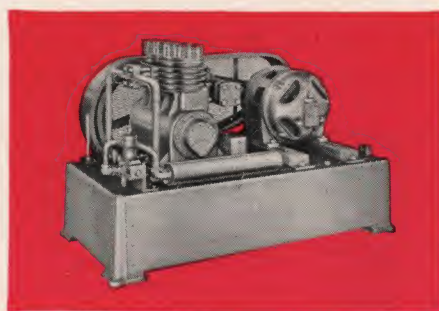
YOU ENJOY A *Cool Home* ON HOT  
SUMMER DAYS AND SWELTERING NIGHTS

**W**HAT would you give for relief from the heat, on a blistering summer day or a stifling summer night? When you are drenched with perspiration? When you cannot sleep? Jumping into the car and joining a motor-ing procession on hot pavements, reeking with gasoline fumes and carbon monoxide exhaust gases, is no relief. Plunging into ocean, lake or river cools you temporarily, but increases discomfort afterwards.

The Sunbeam Air Conditioning System offers you perfect relief! Immediate relief! Permanent relief! A refrigerat-ing machine of the type shown opposite can be connected to the Sunbeam. In the Summer, the tem-perature of the air is lowered as it passes over cooling coils. The cooling coils which are located in a special compartment, are

connected to the refrigerating unit. As the tem-perature of the air drops, moisture is precipitated from it, thereby reducing the high relative humidity which generally obtains in hot weather.

The thermostat will regulate the cooling operation of the system and will maintain the degree of temperature that you find most agreeable. The cooling plant is simple in construction and operation. It is no more complicated than the equipment that you now have with your household electric refrigerator.



The Refrigerating Unit for cooling and dehumidifying the air in hot weather

You can install the refrigerating unit when you purchase your Sun-beam Air Conditioning System—or later. It is immaterial when you do it. The same ducts and registers which carry the warm, filtered, conditioned air in win-ter, are used for the cool, fil-tered, conditioned air in summer.

# *Oil Burning* **SUNBEAM AIR CONDITIONING UNIT**



This Sunbeam Air Conditioning Unit has been designed to burn oil exclusively. With its two-tone green enamel finish, graceful proportions, and rounded corners, it makes an unusually attractive addition to any basement.



## **THERMOSTAT**

Room temperatures are automatically regulated by one, or more, thermostats. In winter, the thermostat sets the unit in operation when temperature drops below a predetermined temperature, 70° for example. Summer temperatures can also be regulated by thermostat.



## **HUMIDISTAT**

This instrument is located in one of the living rooms and controls the spray humidifier. The Humidistat automatically regulates relative humidity in the home just as the thermostat automatically regulates temperature.



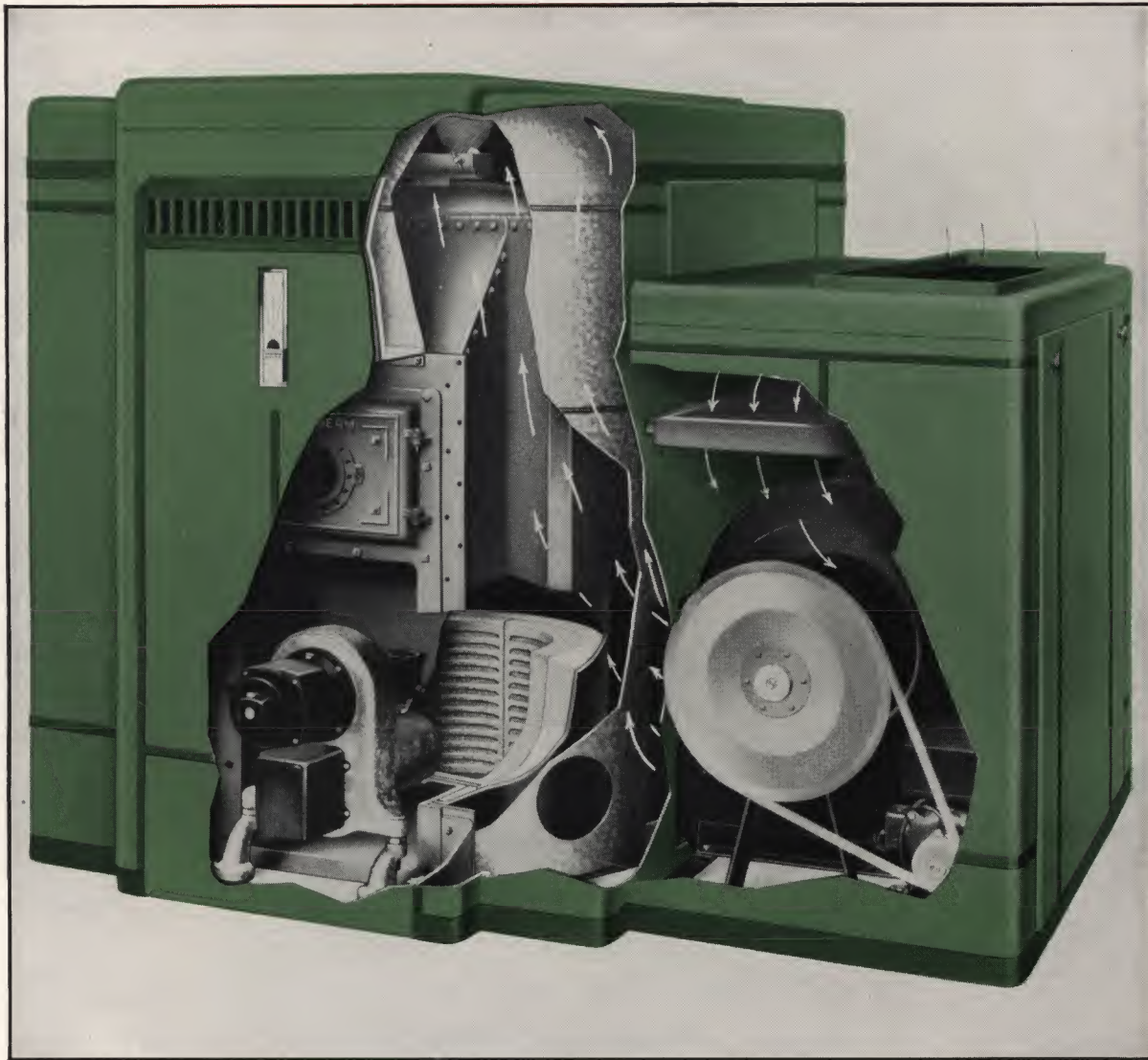
## **BLOWER SWITCH AND LIMIT CONTROL**

Instruments of this type prevent blower from operating until after conditioned air has been heated to blower switch setting. No cool air can be circulated during heating season. Also act as a safety device and shut off heat supply if temperature rises above limit control setting.



## HOW THE

# *Air Conditioning* UNIT FUNCTIONS



This cutaway illustration shows the interior construction of the Sunbeam Oil Burning Air Conditioning Unit

The air is drawn in the Sunbeam through the Return Air Duct. The filters through which it passes remove the dirt, soot and germs before the electric blower forces it into the heating chamber, where it is warmed. The air now cleansed and heated, obtains the proper amount of moisture from the Humidifier, located at the top of heating element, before it passes into

the distributing ducts which lead to each room. When refrigerating equipment is used with the system, the cooling coils can be placed in a special compartment behind the blower and filter compartment. The compressor can be placed anywhere in the heater room or basement. In summer, the heating element and humidifier are not in operation.

THE SUNBEAM GAS FIRED

# *Air Conditioning* UNIT



(Designed for Gas Exclusively)

In the Sunbeam Air Conditioning Unit, handsome appearance is combined with ingenious design. The exterior is pleasingly finished in a two-tone green baked enamel which retains its attractive appearance indefinitely.



## THERMOSTAT

Room temperatures are automatically regulated by one, or more, thermostats. In winter, the thermostat sets the unit in operation when temperature drops below a predetermined temperature, 70° for example. Summer temperatures can also be regulated by thermostat.



## HUMIDISTAT

This instrument is located in one of the living rooms and controls the spray humidifier. The Humidistat automatically regulates relative humidity in the home just as the thermostat automatically regulates temperature.



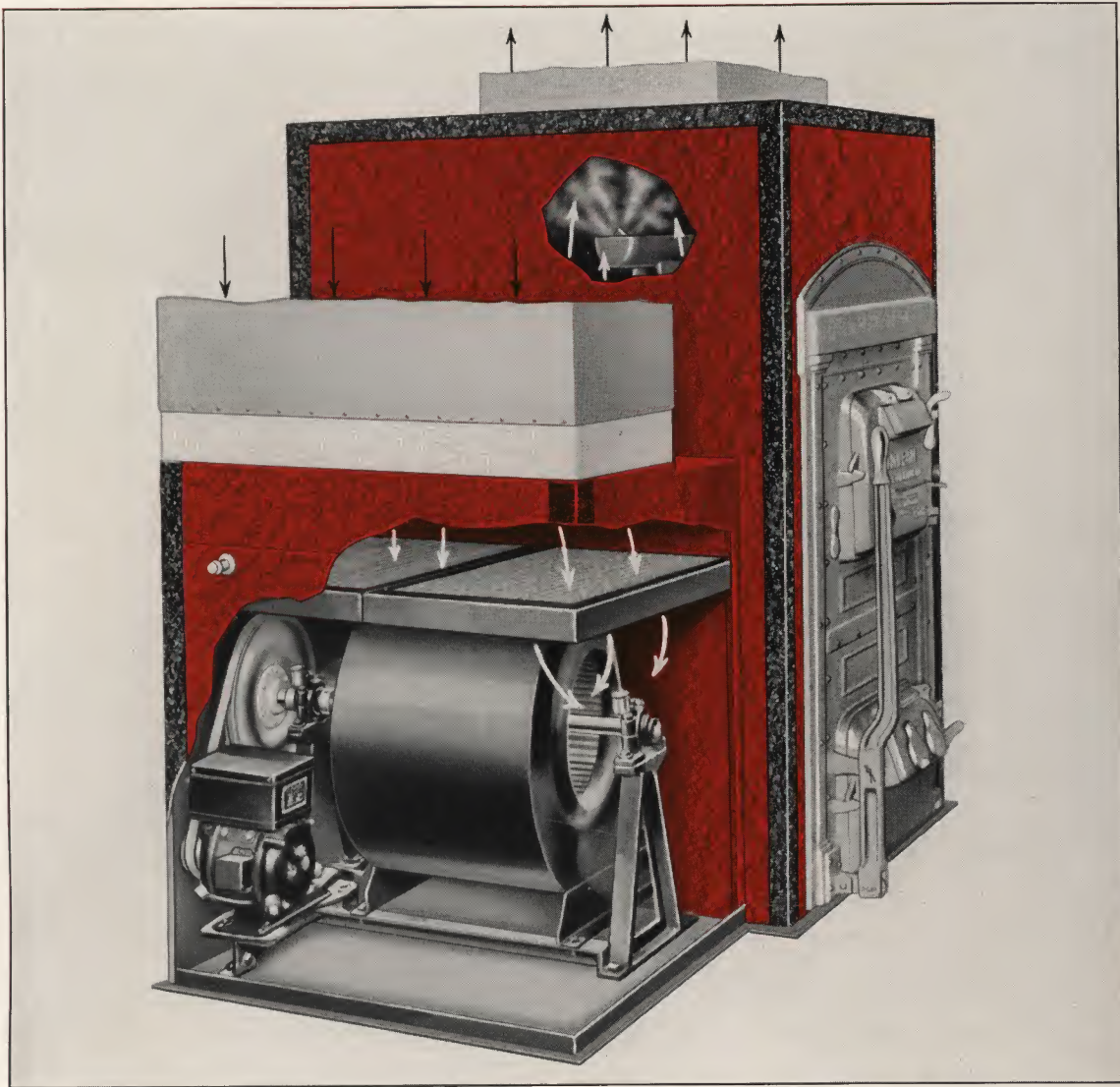
## BLOWER SWITCH AND LIMIT CONTROL

Instruments of this type prevent blower from operating until after conditioned air has been heated to blower switch setting. No cool air can be circulated during heating season. Also act as a safety device and shut off heat supply if temperature rises above limit control setting.



HOW THE SUNBEAM

# *Completely Conditions* THE AIR

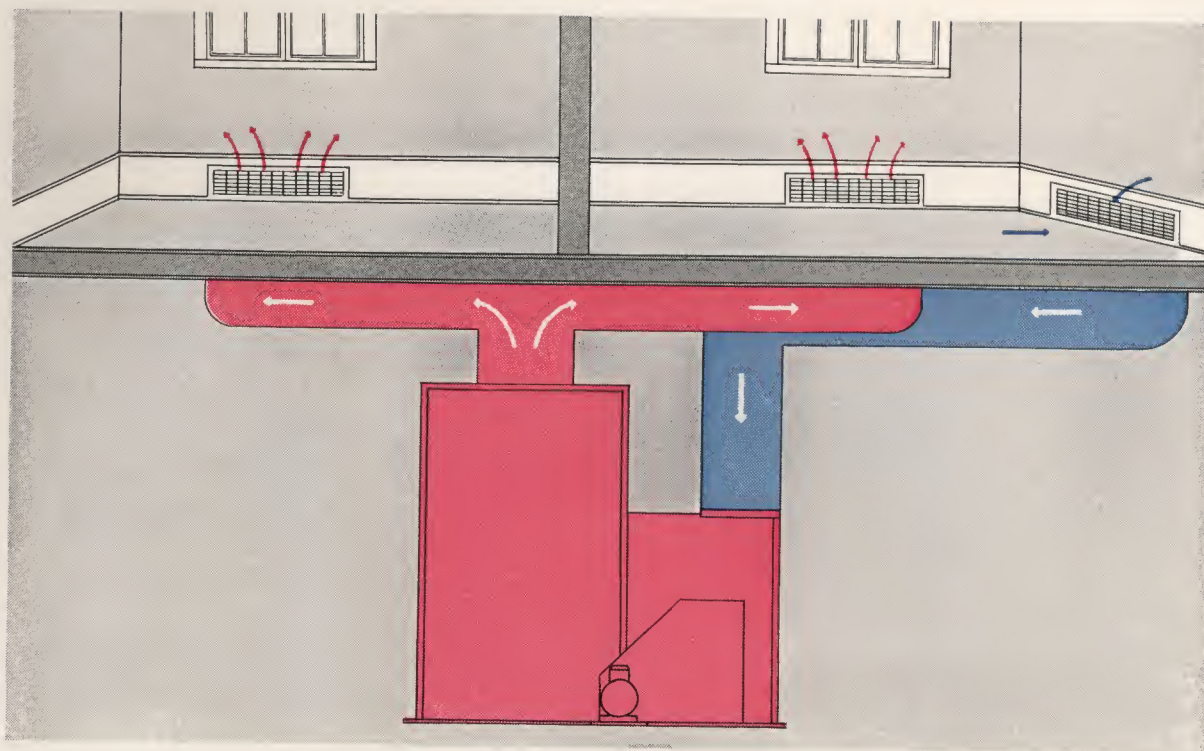


The illustration shows the Coal Burning Model furnished in red and black crystalline baked enamel

This Unit operates identically with the other Sunbeam types. Air is drawn in through the recirculating duct, is cleaned by the filters, forced into heating compartment, moistened by the humidifier and finally passes through the conditioned air ducts and registers. Where a high calibre air conditioner at a surprisingly

low price is desired, the Coal Burning Sunbeam, shown above, fills the requirement perfectly. It is furnished with the same blower, filter, humidifying and control equipment used in the other Units shown in this book. STOKER-FIRED MODEL: The type of Sunbeam air conditioner shown above is also made in a stoker-fired model.





## HOW THE CONDITIONED AIR IS *Circulated* THROUGH YOUR HOME

**T**HE Sunbeam Air Conditioning System places nothing complicated in your basement; nothing difficult to understand; nothing that requires special knowledge. There is only the unit itself and the ducts or pipes shown in the illustration on this page. There is nothing to get out of order or cause trouble.

The air is delivered under pressure which makes it possible to use small ducts, pipes and registers. In

replacing a furnace system this higher velocity enables the Sunbeam Heating Contractor to utilize the present runs which would have insufficient capacity without the forcing action of the blower.

The Sunbeam can be placed anywhere in the basement; in the center, at one end, or in a corner out of the way. The ducts can be, and generally are, concealed by a ceiling in the basement. There need be no visible evidence of the Air Conditioning System in the basement, outside of the heater room.





## *The Basement*

### **THE MOST POPULAR ROOM IN THE HOME**

The possibilities of the basement are unlimited with Air Conditioning. The Unit is out of the way in a space that can be utilized in no other manner. The flat, compact air ducts are placed above the ceiling out of sight. And this valuable space becomes whatever you want it to be. A play room for the youngsters.

A gymnasium. Dance hall. Card room. Billiard room. Or just a general assembly room and recreation center. With the Sunbeam, this recreation center can be kept as spotless and as sanitary as any other rooms. And it will be thoroughly ventilated and air conditioned like the rest of the house.

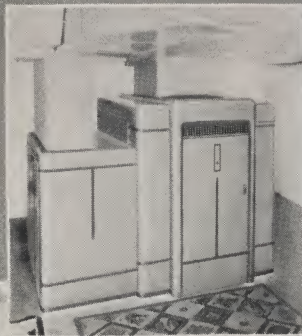


SOME HOMES EQUIPPED WITH

*Sunbeam*

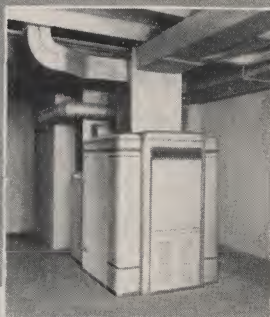


The Sunbeam installation and the attractive recreation room in the basement of an air conditioned residence.





# *Air Conditioning Systems*



The heater room and  
the recreation room of  
another Sunbeam  
equipped residence.





# *You* CAN AFFORD THE SUNBEAM AIR CONDITIONING SYSTEM

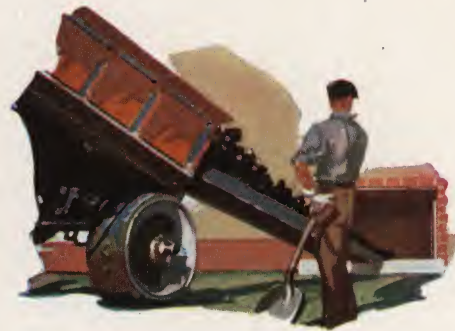


Nearly everyone, when they learn about Air Conditioning, remarks that it is a much needed development and must be costly. Since the Sunbeam has been introduced, residential Air Conditioning is no longer expensive. The resources, purchasing ability and manufacturing facilities of the world's largest makers of heating equipment, bring this equipment within the purchasing reach of virtually every home owner who appreciates the advantages of Custom Made Climate at home.

In many homes the initial cost of a new Sunbeam — without the cooling equipment — will be about the same or a few dollars higher than that of a good heating system, properly installed.



In certain homes above average in size and now equipped with furnaces, Air Conditioning may be lower in price. The Sunbeam Heating Contractor in your neighborhood or community will gladly study your requirements and submit plans and give you a definite quotation.



You are not being fair to yourself and your budget of expenditures, if your comparison stops with the initial costs. For when you take into consideration the saving in fuel, doctor, medicine, cleaning and decorating bills — and the loss of income when incapacitated by winter illness — each year and every year that you enjoy Sunbeam Air Conditioning, you will discover that it is the most economical innovation that has yet been presented to home owners anywhere.





THE FOX FURNACE CO.  
ELYRIA, OHIO

Gentlemen:

- ☐ Will you have one of your representatives tell us more about Sunbeam Air Conditioning?
- ☐ Will you have one of your representatives submit cost estimates and plans for Air Conditioning our new home, without obligation or cost to us?

FILL IN AND  
RETURN THIS  
POST CARD  
NO STAMP  
IS NEEDED

Name \_\_\_\_\_

Address \_\_\_\_\_

City and State \_\_\_\_\_

## THE ORGANIZATION BEHIND THE SUNBEAM AIR CONDITIONING UNIT

**Y**OU can select this most modern of systems with a sense of deep security because of the reputation, experience and responsibility of the organization behind it, which has played a leading role in every new development in the science and progress of heating.

The heating contractor who sells and installs this equipment is a member of your community, an independent, local businessman. He is well qualified by training and experience to make an installation to your perfect satisfaction. He has at his disposal the services of a staff of heating and air conditioning engineers at the factory. These Engineers are ready at all times to advise and assist Sunbeam Contractors and are prepared, wherever advisable, to plan and design the installation of the Air Conditioning System.

All Sunbeam Systems are suitable for small schools, churches, stores, and other buildings whose requirements are within the capacities of this equipment.


**THE FOX FURNACE CO., ELYRIA, OHIO**

A DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

**SUNBEAM**  
**AIR CONDITIONING UNIT**

FIRST CLASS  
PERMIT No. 46  
Sec. 384½ P. L. & R.  
ELYRIA, OHIO

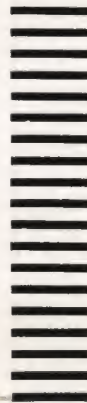
**BUSINESS REPLY CARD**

 No Postage Stamp necessary if mailed in the United States

2c --- POSTAGE WILL BE PAID BY

**THE FOX FURNACE CO.**

**ELYRIA, OHIO**



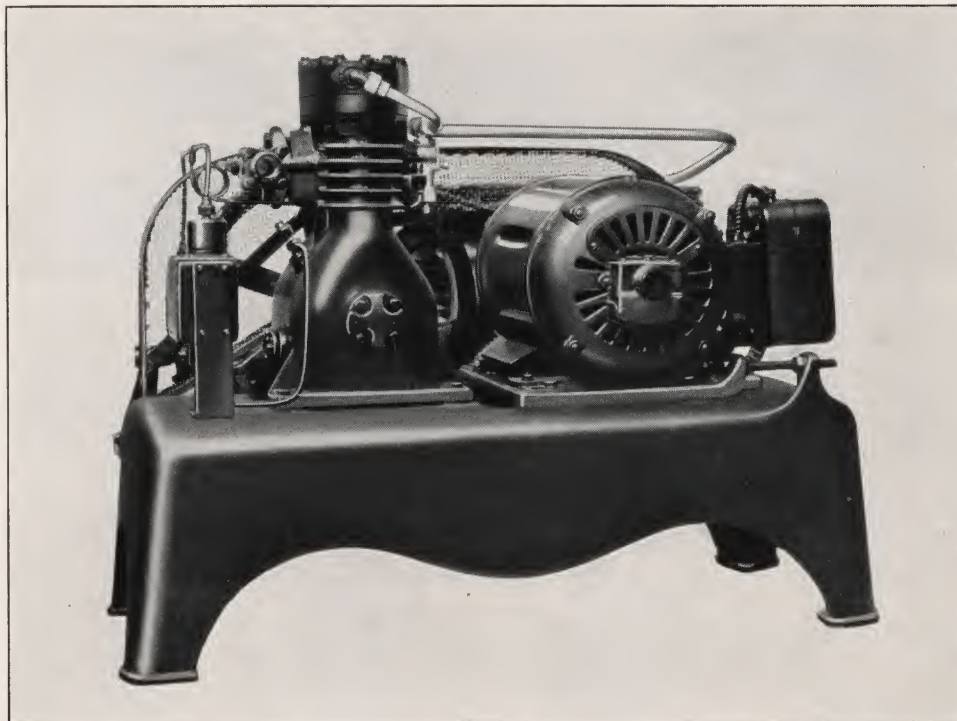
**THE FOX FURNACE COMPANY, ELYRIA, OHIO**



# SUNBEAM COOLING EQUIPMENT

*For Use with Sunbeam WINTER Air Conditioning Systems*

## SUNBEAM CONDENSING UNITS



The No. W-200 Sunbeam Condensing Unit. Capacity, 2 tons.

Condensing Unit consists of complete assembly, and includes the base, motor, compressor with all valves, condenser, receiver, V-belt drive, guard, dual control, and starter switch.

### SPECIFICATIONS

**COMPRESSOR**—2-Cylinder, vertical, reciprocating, valve-in-head, single-acting. Suction and discharge valves are of improved design and high operating efficiency. Suction and discharge valves located in valve plate.

**CYLINDER BODY**—Cast semi-steel with finned cylinder body, and water-cooled head.

**SERVICE VALVES**—Located on side of cylinder. Drop forged brass, two-way shut-off with gauge connections. Suction—Drop forged brass, seal cap, two-way shut-off with gauge connections. 1" hard drawn fitting.

**COMPRESSOR SEAL**—Bellows and lubricated ring type. Patented features provide pressure variation and insure service-free operation.

**CRANKSHAFT**—Extra heavy counter-balanced drop forged steel with ground and lapped bearing surfaces.

**PISTONS**—High grade cast iron, accurately machined, three rings per piston.

**CONNECTING ROD**—Drop forged steel.

**LUBRICATION**—Crankshaft revolves in a bath of oil, supplying lubrication to all bearings, seal and cylinder wall. A permanent supply of special refrigeration oil is charged into the compressor at the factory. Visible oil level sight is provided in crankcase wall.

**DRIVE**—Consult specification Data Table for particular application.

**MOTOR**—This motor is especially designed for refrigeration duty, and is built to give high starting torque with low starting and operating power consumption. Motor bearings are well lubricated with an ample supply of wool yarn packing.

Standard motors are A.C. 110/220 Volt, 60 Cycle, Single Phase, Repulsion-induction, except 5 H.P. motor, which is 220/440 Volt, Three Phase.

**CONDENSER**—Water-cooled, double copper tube, high velocity counter-flow type resulting in low condensing pressure and very low liquid temperature.

**LIQUID RECEIVER**—Horizontal, seamless steel shell construction with spun ends and fusible safety plug. Consult Engineering Data Table for capacity.

**DUAL CONTROL**—Low pressure control with adjustable high pressure cut-out.

**BASE**—Heavy cast-iron construction with adjustable motor plates.

**LIQUID LINE STRAINER**—Remote type—furnished with unit to be installed in liquid line. S.A.E. flared connections.

**REFRIGERANT**—Units are charged with Freon.

**FINISH**—All surfaces are specially treated to resist corrosion, etc. The compressor and base are finished in black enamel, and the condenser assembly is lacquered in bronze.

## THE FOX FURNACE COMPANY • ELYRIA, OHIO

A DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION



## SPECIFICATION DATA TABLE

Model Number	W-100	W-150	W-200	W-300	W-500
Condenser Cooling Medium.....	Water	Water	Water	Water	Water
Size of Motor, H.P.....	1	1½	2	3	5
Compressor Speed—R.P.M.....	260	310	420	395	400
Displacement Cu. Ft.   Hr.....	217	316	430	608	1038
No. of Compressor Cylinders.....	2	2	2	3	3
Bore of Cylinders, In.....	2¼	2½	2½	2½	3¼
Stroke of Cylinders, In.....	3	3	3	3	3
Flywheel—Outside Diameter, In.....	16	16	16	15.7	15.7
Pulley—Outside Diameter, In.....	2⅞	3⅜	4⅝	4⅞	4⅜
Motor Shaft Diameter, In.....	¾	1	1	1	1⅞
Number of "V" Belts.....	2	2	2	2	4
Part Number.....	2083	2083	2083	40580	40580
Outside Circumference, In.....	58⅝	58⅝	58⅝	92½	92½
Refrigerant Charge—Freon—Lbs.....	12	12	12	18	5
Receiver Pump-down Capacity—Lbs.....	22.0	22.0	22.0	40.0	40.0
Receiver Liquid Outlet Valve.....	⅜" SAE	½" SAE	½" SAE	⅝" SAE	⅝" SAE
Receiver Liquid Inlet Valve.....	⅜" SAE	½" SAE	½" SAE	⅝" SAE	⅝" SAE
Fusible Plug.....	⅜" Pipe	⅜" Pipe	⅜" Pipe	⅜" Pipe	⅜" Pipe
Vent Connection.....					
Compressor Suction Line Valve.....	⅝" SAE	¾" H.D.	1" H.D.	1" H.D.	1" H.D.
Oil Charge in Compressor Pts.....	4½	4½	4½	7½	7½
Oil Level, In.....	4½	4½	4½	3¾	3¾
Condensing Water:—					
Inlet Connection.....	⅜" Pipe	⅜" Pipe	⅜" Pipe	⅜" Pipe	½" Pipe
Outlet Connection.....	⅜" Pipe	⅜" Pipe	⅜" Pipe	½" Pipe	¾" Pipe
Water Regulating Valve.....	⅜" Pipe (Penn)	⅜" Pipe (Penn)	⅜" Pipe (Penn)	½" Pipe (Penn)	½" Pipe (Penn)
Condensing Unit Dimensions:—					
Length Overall, In.....	38½	38½	38½	52½	52½
Width Overall, In.....	24¾	26	26	24¾	24¾
Height Overall, In.....	29¼	30	30	32½	33
Condensing Unit Shipping Weight,—Lbs.....	535	556	566	780	890

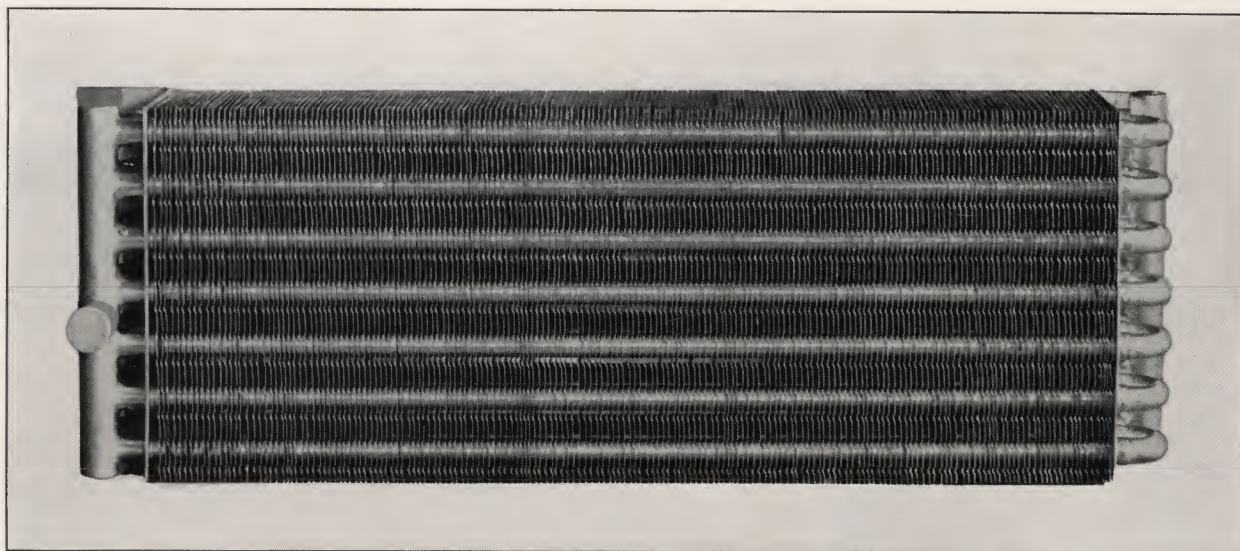
## CAPACITIES . . . All Ratings Based on A. S. R. E. Standards

Model No.	Suction Temp. Deg. F.	Suction Pressure Lb./Sq. In.	Capacity Rating in BTU/Hr. Temp. of Condensing Medium			Power Consumption in KWH/Hr. Temp. of Condensing Medium		
			70°	80°	90°	70°	80°	90°
W-100.....	30	28.5	11000	10400	9850	1.105	1.185	1.263
	35	32.6	12300	11600	10900	1.140	1.230	1.325
	40	37.0	13600	12800	12000	1.170	1.275	1.380
W-150.....	30	28.5	17000	16250	15375	1.590	1.700	1.820
	35	32.6	18600	17875	16850	1.640	1.770	1.900
	40	37.0	20300	19500	18250	1.690	1.840	1.980
W-200.....	30	28.5	22000	20850	19800	2.210	2.360	2.515
	35	32.6	23750	22500	21400	2.290	2.460	2.640
	40	37.0	25650	24300	23100	2.375	2.560	2.765
W-300.....	30	28.5	29700	27800	25500	2.910	3.100	3.320
	35	32.6	32500	30750	28400	3.070	3.285	3.525
	40	37.0	35500	33750	31250	3.200	3.460	3.720
W-500.....	30	28.5	51200	48000	44300	4.500	4.770	5.050
	35	32.6	56500	53000	49200	4.700	5.000	5.300
	40	37.0	62000	58000	54000	4.900	5.250	5.550



# SUNBEAM COOLING COILS

*For Use with Sunbeam Condensing Units*



SUNBEAM Cooling Coils are specially designed to efficiently and economically cool and dehumidify the air in summer, using Freon as the refrigerant. They are carefully proportioned to provide maximum heat transfer from the air to the coil and to discharge the air at uniform temperatures. The increase in resistance set up by these coils is kept to a minimum by their superior design and construction.

The coils are made with  $\frac{3}{4}$ " O.D. Copper tubing having a tube spacing of  $1\frac{5}{8}$ " and 6 copper fins per inch. Tube holes are flanged to provide a greater area of fin contact on the tube. The tubes are pressed through the fin to provide an extremely tight and efficient fit at each fin. All units are thoroughly cleaned and dipped in a solder bath having a high tin content to insure a thermal bond between the fin and tube that will not be affected by expansion or contraction due to temperature changes during operation.

The coils are to be operated horizontally and are arranged with the expansion valve discharging to the lower header. The Freon refrigerant is distributed through a multi-pass arrangement of  $\frac{3}{4}$ " O.D. tubes to provide uniform temperature across the face of the coil and a low pressure drop.

## CAPACITIES AND DIMENSIONS

No.	†Approximate Tonnage	Width	*Length	Depth	No. of Rows	Approximate Resistance at 400 F.P.M.
100.....	1	6 $\frac{1}{2}$ "	30"	4 $\frac{7}{8}$ "	3	.12
150.....	1 $\frac{1}{2}$	11 $\frac{3}{8}$ "	30"	4 $\frac{7}{8}$ "	3	.12
200.....	2	11 $\frac{3}{8}$ "	30"	6 $\frac{1}{2}$ "	4	.15
300.....	3	11 $\frac{3}{8}$ "	42"	6 $\frac{1}{2}$ "	4	.15
‡500.....	5	16 $\frac{1}{4}$ "	48"	6 $\frac{1}{2}$ "	4	.15
		16 $\frac{1}{4}$ "	42"	6 $\frac{1}{2}$ "	4	.15

†For actual capacity refer to Capacity Table page 2 opposite.

\*Add 5" to above length for length overall which includes headers.

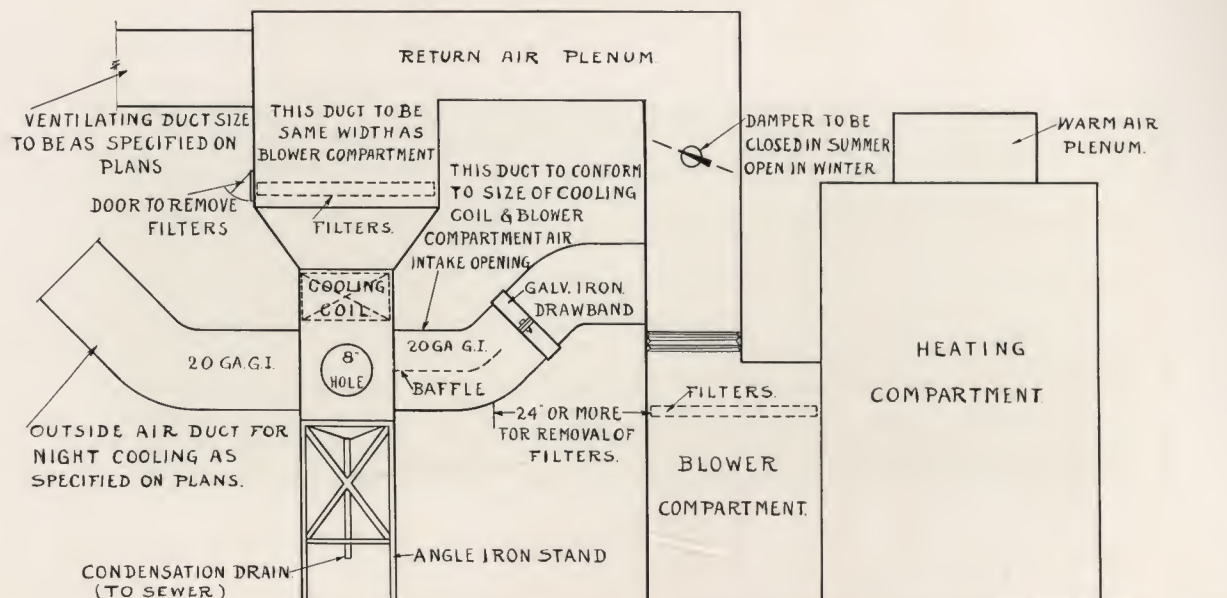
‡Coils of two different face areas are available so that a coil, that conforms to the dimensions of the duct Leading to the Return Air Intake of the Sunbeam *Winter* Air Conditioning Unit, can be selected.



# SUNBEAM COOLING EQUIPMENT

## INSTALLATION OF COOLING COILS

(Duct for Housing Coil is Fabricated by Installer)



The sketch above shows the cooling coils located in a special duct fitting, in the rear or side of the blower compartment, which is connected to the main return air duct. By closing the damper, the air is diverted through this special duct fitting and coil in the summer. For winter operation, the damper is opened, in which event the air by-passes the cooling coil. In both summer and winter the air is drawn into the Blower Compartment from which it is discharged into the Heating Compartment (which is not under fire in summer), and then passes upward into the Supply (Warm Air) Plenum and Supply (Warm Air) ducts.

In summer, filters should be installed ahead of the Coil, as shown on the sketch. A pipe, for carrying condensed moisture to the drain as shown on sketch, must also be installed.

## IN CALCULATING COOLING REQUIREMENTS

Several factors affect the *cooling* requirements of a residence, which do not enter into the calculation of *heating* requirements. In figuring cooling requirements the construction and area of walls and roofs, and the amount of glass and doors in outside walls, must be figured, and in addition, calculations depend on the factors listed below:

1. What direction does the house face?
2. What is outside dry bulb and wet bulb temperature in summer?
3. Are windows equipped with awnings?
4. Are they shielded from sun by trees or other buildings?
5. How many people should be provided for?
6. Will electric lights be on during the day?
7. Will more than a normal amount of outside air (10%) be required for ventilation?
8. Is the attic ventilated?
9. Which rooms are to be cooled?

## THE FOX FURNACE COMPANY • ELYRIA, OHIO

A DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

# SUNBEAM

## AIR CONDITIONING UNIT

*Heats* **IN WINTER** .. *Cools* **IN SUMMER**

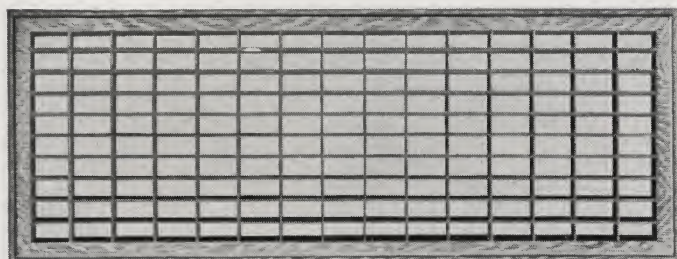


# Simplified Gravity Register Stock Recommended

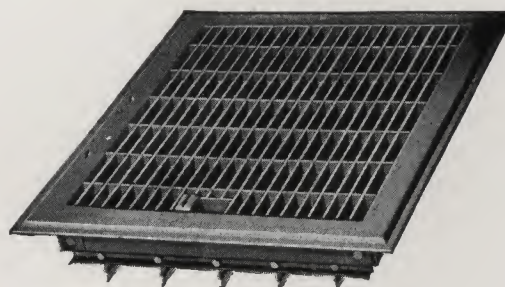
## by The Fox Furnace Company

### and Carried in Stock at Elyria, Ohio

No. 130 Cold Air Faces

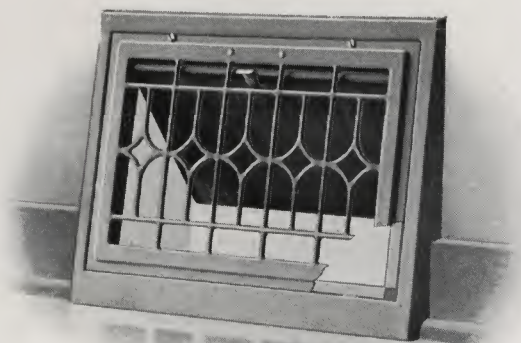


No. 31 Floor Registers with Multiple Valves

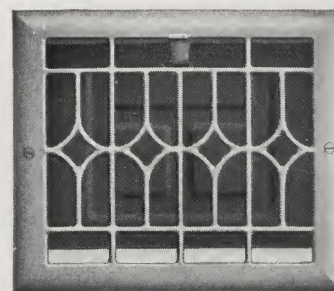


For Round Pipe	Standard Package Quantity	Face Size Floor Opening Inches	Open Area Square Inches	List Prices		For Round Pipe	Standard Package Quantity	Floor Opening Size Inches	Open Area Sq. Inches	List Prices	
				Black Japan	Golden Oak					Black Japan	Golden Oak
14"	12	8x24	159	\$3.20	\$3.60	8"	10	8x10	55	\$1.70	\$1.85
16"	12	10x24	201	3.40	3.80	8"	10	8x12	67	1.90	2.05
16"	12	8x30	201	3.60	4.05	9"	10	9x12	76	2.15	2.35
18"	12	10x30	254	3.75	4.20	10"	8	10x12	85	2.40	2.60
18"	12	12x30	301	4.00	4.50	12"	6	12x14	121	4.25	4.55
20"	12	14x30	354	4.60	5.15	14"	4	14x16	163	6.85	7.20
22"	12	16x30	407	5.50	6.15						

No. MT Baseboard Registers  
Two Piece Style, Single Valve



No. HM Side Wall Registers  
One Piece, Single Valve



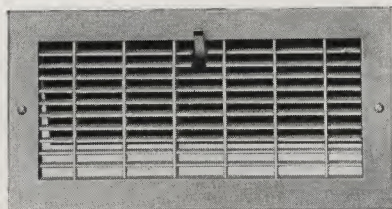
Number	Standard Package Quantity	Open Area of Face Sq. Inches	For Round Pipe	List Prices		Number	Standard Package Quantity	Stackhead Size Inches	Open Area Square Inches	List Prices		
				Black Japan	Antique Lacquer Bronze					Black Japan	White Japan	Antique Lacquer Bronze
10x8-2 1/4	6	50	8"	\$2.00	\$2.35	10x8HM	16	10x8	50	\$1.50	\$1.80	\$1.80
12x8-2 1/4	6	63	8"	2.40	2.90	12x8HM	16	12x8	63	1.75	2.10	2.10
12x9-2 1/4	6	74	9"	3.00	3.50	12x9HM	16	12x9	74	1.90	2.30	2.30
12x10-3 1/4	6	83	10"	4.00	4.60							
13x11-5 1/4	1	100	12"	5.25	6.00							
14x12-5 1/4	1	123	12"	6.50	7.50							



# SIMPLIFIED AIR CONDITIONING REGISTER STOCK RECOMMENDED BY THE FOX FURNACE CO. AND CARRIED IN STOCK AT ELYRIA, OHIO

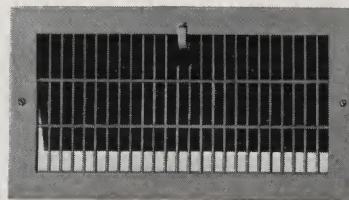
No. 311A—Adjustable Directed Air Flow Registers; the grille bars may be adjusted to direct the air flow to any desired degree to 45°, either up or down.

No. 311—With grille bars permanently set for straight flow.



No. 321A—Adjustable Directed Air Flow Registers; the grille bars may be adjusted to direct the air flow to any desired degree to 45°, either right or left.

No. 321—With grille bars permanently set for straight flow.



**Setting Frames;** either WO, WX or BX setting frames, as shown below, are suitable for use with these registers. It is important that the style of frame desired be specified.

## REGISTERS LESS VALVES (RETURN AIR INTAKES)

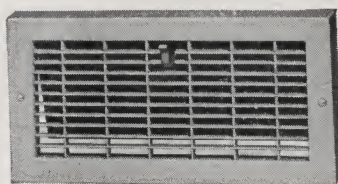
An exact match, in size and capacity, of the registers shown above except that they are without valves and lever slots.

They should be ordered as 311 LV or 321 LV. If setting frames are desired, the style of frame should be specified.

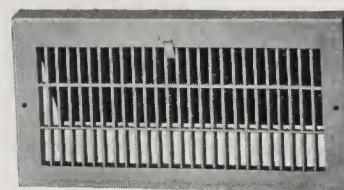
**BASEBOARD REGISTERS WITH SIDE AND TOP PROJECTING FLANGES.** Extending outward  $\frac{7}{8}$  inch from the plaster line.

No. 311 BO, with grille bars permanently set for straight outward flow.

No. 321 BO, with grille bars permanently set for straight outward flow.



Distance from floor to stack head opening  $\frac{5}{8}$  inch.



**Setting Frames;** either the WO or BX setting frame, as shown below, is suitable for use with BO baseboard registers. It is important that the style of frame desired be specified.

## BASEBOARD RETURN AIR INTAKES (BBI) With Side and Top Projecting Flanges

An exact match in size and capacity of the baseboard registers shown above except that they are without valves and lever slots.

Intakes should be specified as 311BBI or 321BBI.

They may be installed either with or without setting frames. If setting frames are desired either WO or BX frames are suitable.

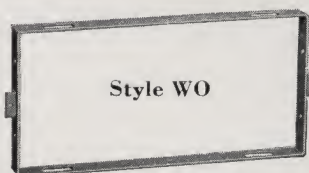
List Prices in Prime Coat Finish and Capacities of No. 311 and No. 321 Registers and Registers Less Valve.

Size	Free Area Sq. Inch	Maximum C. F. M. Thru Register		No. 311-A and No. 321-A		No. 311 and No. 321		No. 311BO & No. 321BO with WO Frame	*No. 311LV & No. 321LV	*No. 311BBI & No. 321BBI
		at 300 FPM.	at 500 FPM.	With WO Frame	With WX or BX Frames	With WO Frame	With WX or BX Frames			
10x4	21	44	73	\$2.95	\$3.45	\$2.45	\$2.95	\$2.75	\$1.40	\$1.70
10x6	36	74	124	3.25	3.80	2.75	3.30	3.05	1.55	1.85
10x8	50	104	173	3.55	4.15	2.95	3.55	3.30	1.70	2.05
12x6	43	91	151	3.55	4.15	2.95	3.55	3.30	1.70	2.05
12x8	61	127	212	3.85	4.50	3.25	3.90	3.65	1.85	2.25
14x6	51	107	178	3.85	4.50	3.25	3.90	3.65	1.85	2.25
14x8	71	149	248	4.15	4.85	3.40	4.10	3.85	1.95	2.40
30x6	113	236	393	---	---	---	---	---	3.25	3.95

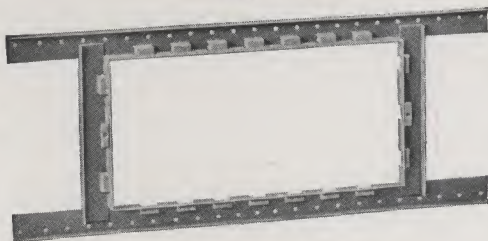
\*These are Return Air Intakes and are an exact match of the warm air registers except that they are constructed without valves and without the slots for valve lever. With Nos. 311 L. V. and 321 L. V., and BBI, if Setting Frames (below) are desired the list price of the setting frame should be added.

## SETTING FRAMES FOR WALL AND BASEBOARD REGISTERS

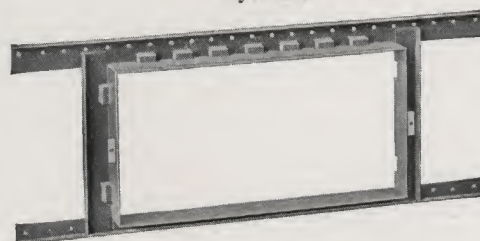
For Wall or Baseboard  
Style WO



For Wall Only  
Style WX



For Baseboard  
Style BX



Style WO may be installed either before or after lath and plaster.

Standard Depth of Frame,  $\frac{5}{8}$  in.  
Style WX must be installed before lath and plaster.

Standard Depth of Frame  $1\frac{3}{8}$  in.  
Style BX must be installed before lath and plaster.

List Prices on Frames Only When Purchased Separately, or if Omitted from Registers

For Register Size	WO	WX or BX	For Register Size	WO	WX or BX
10x4	\$ .30	\$ .80	12x8	\$ .40	\$1.05
10x6	.35	.90	14x6	.40	1.05
10x8	.35	.95	14x8	.40	1.10
12x6	.35	.95	---	---	---

**Important:** The style of setting frame desired should be specified on all orders.



**INDEPENDENT**  
*Air Conditioning*  
**REGISTERS AND GRILLES**



**THE INDEPENDENT REGISTER CO.**

**3747 EAST 93rd STREET • CLEVELAND, OHIO**

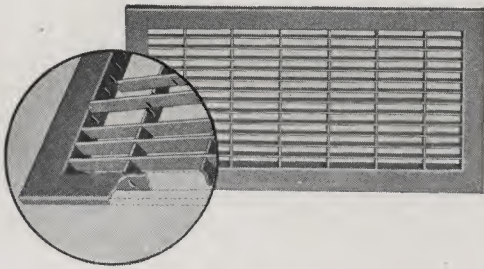
**CATALOGUE No. 36AC**





# Independent "Fabrikated" Air Conditioning Registers

REG. U. S. PAT. OFFICE

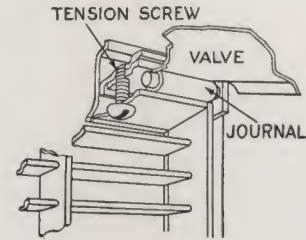
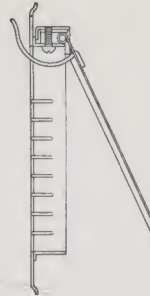
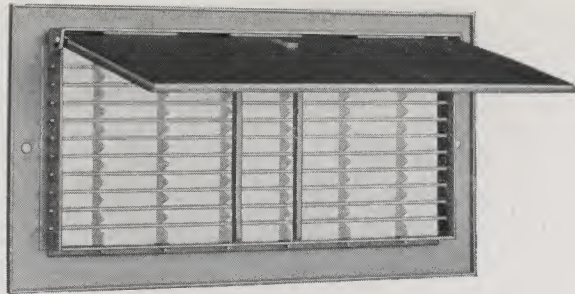


"FABRIKATED" offers the advantage of more than the usual open (free) area; greater capacity. Small sizes may be used. The designs are unobtrusive, yet have the appearance of permanence so important with high class installations.

"Fabrikated" supplies uniformity in design for use in the wall, baseboard or floor.

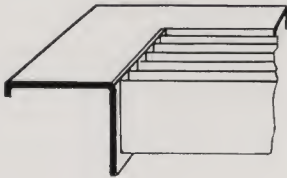
"Fabrikated" Face construction differs from others. The steel outer frame is welded to form a solid piece and the grille is made up of steel strips *set on edge* which extend through openings in the outer frame, as illustrated.

In registers for use in the wall or baseboard, the interior grille bars are  $\frac{1}{2}$  inch in depth in the Nos. 300, 311, 311A, 321A, 312 and 322, and  $\frac{5}{8}$  inch deep in the Nos. 211 and 201 designs.

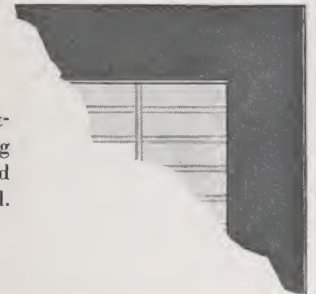


These views show the method of hanging the valves, the tension bar and screws, of all "Fabrikated" single valve Air Conditioning Registers. The valves open to full 90° and fit snugly; important features in Air Conditioning Registers. The tension screws may be tightened to hold the valve in any desired position.

**NOTE:** All Air Conditioning Registers are furnished with Single Valves as shown above, unless otherwise specified. Registers with multiple valves as illustrated and described on page 11 can also be supplied.



The outer rims of "Fabrikated" Register Faces lend themselves to air tightness. Note from the illustration how the edges are turned backward providing space in the rims to hold a felt or asbestos packing. Or the rim may be filled with patching plaster or cement, thus sealing the register face to the wall.



## IMPORTANT — Before Ordering

The line of sizes, styles and finishes of Air Conditioning Registers and Grilles is so extensive that it is not feasible to carry them all in stock, and it may be necessary to complete some requirements after we receive the order.

**We Urge That Orders for This Line Be Placed in Advance of Actual Needs.**

### Information Needed to Fill Your Order

**QUANTITY:** (Number pieces wanted).

**SIZE:** (Duct Opening or Stack Head; Horizontal dimension first ALWAYS).

**STYLE OF SETTING FRAME:** (WX, WO, WT or BX). See Page 9.

**STYLE OF DESIGN:** (311A, 312, etc.).

**FINISH:** (See page 29). Prime coat finish is furnished on all forced air registers and grilles if not otherwise specified.

All Forced Air Registers are shipped with Single Valves, as shown on this page, unless otherwise ordered.

If **Multiple Valve Registers**, as shown on page 11, are desired, please specify as illustrated and described on that page. (VMV or H MV style No. 1 or 2).



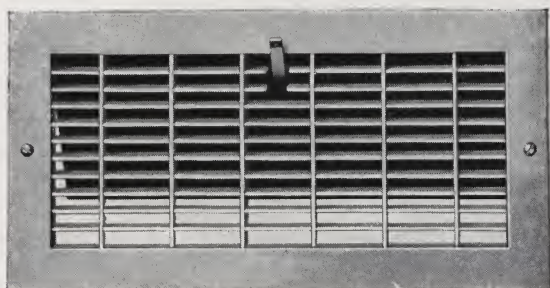
## Independent "Fabrikated" Registers

REG. U. S. PAT. OFFICE

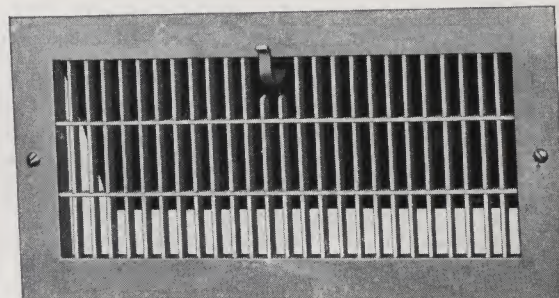
### Grille Bars Permanently Set for Straight Outward Flow

These registers are made with the styles of setting frames described on pages 8 and 9.  
The style of frame should be specified, in ordering.

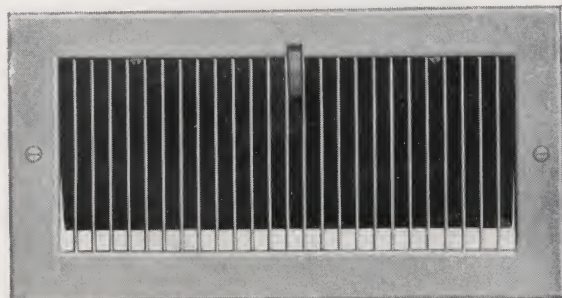
Sizes and List Prices, Pages 24 and 25. Capacities, Page 33.



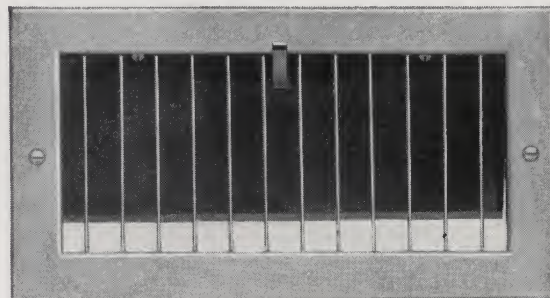
No. 311  
Openings in Face,  $1\frac{11}{16} \times \frac{3}{8}$  inch  
Interior Bars,  $\frac{1}{2}$  inch deep x .078 (14 Ga.)  
List prices, tables E and F, page 25.



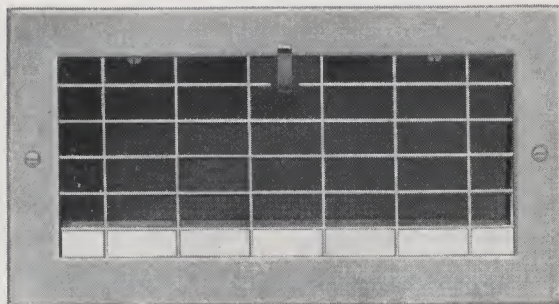
No. 321  
Openings in Face,  $\frac{3}{8}$  inch wide  
Interior Bars,  $\frac{1}{2}$  inch deep x .078 (14 Ga.)  
List prices, tables E and F, page 25



No. 211  
Openings in Face,  $\frac{3}{8}$  inch wide  
Interior Bars,  $\frac{5}{8}$  inch deep x .078 (14 Ga.)  
List prices, tables E and F, page 25



No. 201  
Openings in Face,  $\frac{3}{4}$  inch wide  
Interior Bars,  $\frac{5}{8}$  inch deep x .078 (14 Ga.)  
List prices, tables A and B, page 24



No. 300  
Openings in Face  $1\frac{11}{16} \times \frac{3}{4}$  inch  
Interior Bars,  $\frac{1}{2}$  inch deep x .078 (14 Ga.)  
List prices, tables A and B, page 24

### Registers Less Valves (Return Air Intakes)

Often it is desired that the intakes be an exact match in size, and capacity, with the registers used. These can be furnished with-

out valves and without lever slots, and should be ordered giving the number of the design followed by the letters LV.  
For prices, see table SV, page 30.



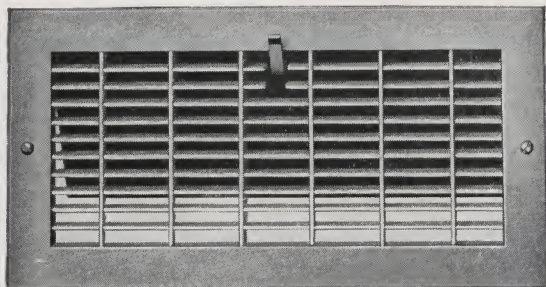
# Independent "Fabrikated" Air Conditioning Registers

REG. U. S. PAT. OFFICE

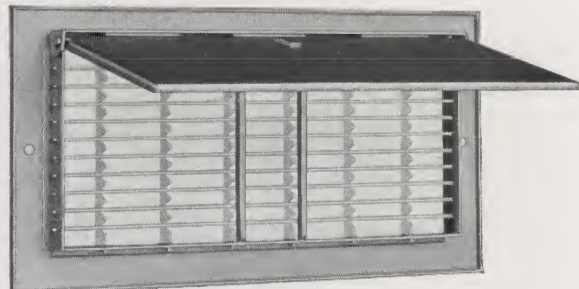
## No. 311-A—ADJUSTABLE DIRECTED AIR FLOW REGISTERS

The grille bars may be adjusted to direct the air flow to any desired degree to 45°, either up or down. Three styles of setting frames as shown on page 8 and 9. The style of frame should be specified in ordering.

Sizes and List Prices, Page 26, Tables J and K. Capacities, Page 33.



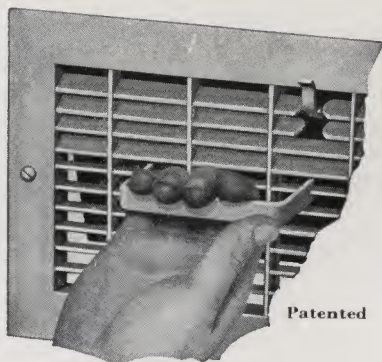
No. 311 A—Showing all Grille Bars set for Straight Air Flow.



No. 311 A—Back View, Showing Single Valve.

The New 311A and 321A Adjustable Directed Air Flow Registers fill an ever growing need. With these registers the engineer is in complete control of the direction of air flow.

The directional adjustment can be made at the time of installing and after the system is operating it may easily be changed at any time to make corrections necessary to meet unforeseen or changed conditions.



Patented

The method of adjustment is very simple. With each order is included a tool for turning the grille bars. The picture shows the simplicity of the operation, and the ease with which the bars can be adjusted for any angle of deflection to 45°.

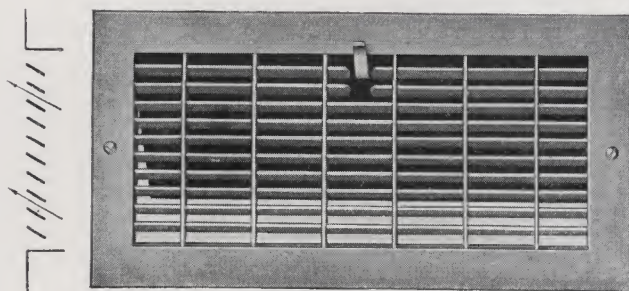


Adjusting Tool

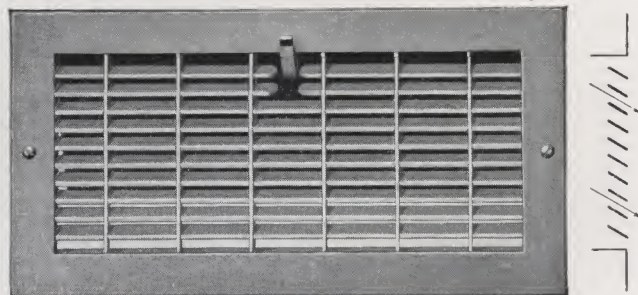
Size of openings in the face:  $1\frac{11}{16} \times \frac{3}{8}$  inches.

Interior Bars: 14 Ga. (.078)  $\times \frac{1}{2}$  inch Cold Rolled Steel.

Face Rim: Cold Rolled Steel.



No. 311 A — Air Flow Upward.  
Angle of deflection adjustable from straight to 45 degrees.



No. 311 A — Air Flow Downward.  
Angle of deflection adjustable from straight to 45 degrees.

The 311A Registers can also be furnished with either the vertical or horizontal Multiple Valves, as shown on page 11.

## REGISTERS LESS VALVES (Return Air Intakes)

Often it is desired that the intakes be an exact match in size, and capacity, with the registers used. These can be furnished without valves and without lever slots, and should be ordered as No.

311 A-LV, and the style of setting frame specified. (See Page 9). For prices, see table SV, page 30.



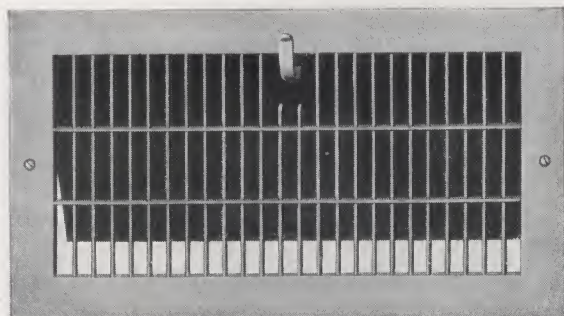
# Independent "Fabrikated" Air Conditioning Registers

REG. U. S. PAT. OFFICE

## No. 321A—ADJUSTABLE DIRECTED AIR FLOW REGISTERS

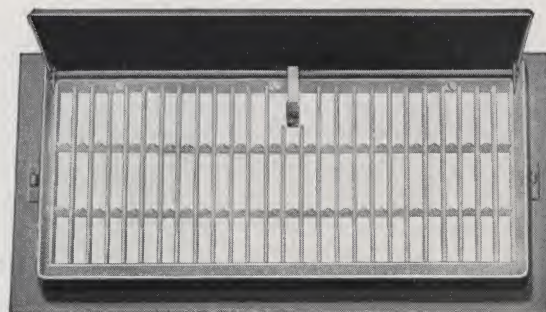
The grille bars may be adjusted to direct the air flow to any desired degree to 45°, either right or left. Three styles of setting frames as shown. The style of frame should be specified in ordering.

Sizes and List Prices, Page 26, Tables J and K. Capacities, Page 33.



No. 321 A — Showing All Bars Set for Straight Air Flow.

The No. 321 A differs from the 311 A in that the adjustable Grille Bars are vertical, permitting right and left deflection. Practically any combinations of right and left deflection to 45°, some of



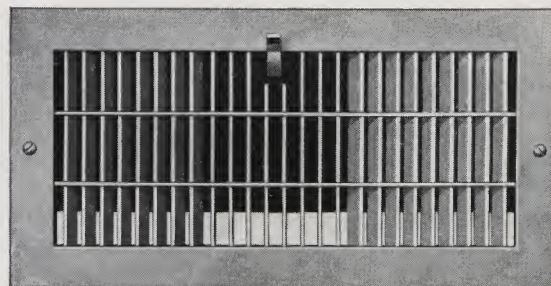
No. 321 A — Back View, Showing Single Valve and WO Wall Frame. which are illustrated, may be secured.

The directional adjustment may be made at the time of installing or any time after the system is operating.



Patented

Showing the simple and easy method of adjustment.

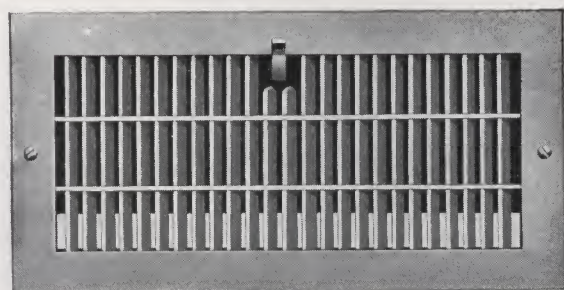


A Fan Shape in Air Flow Deflection. Two Angles to the Left—One Straight Flow—Two Angles to the Right. Any combination desired can be secured.

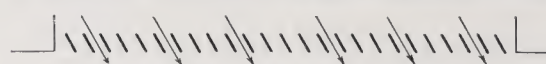
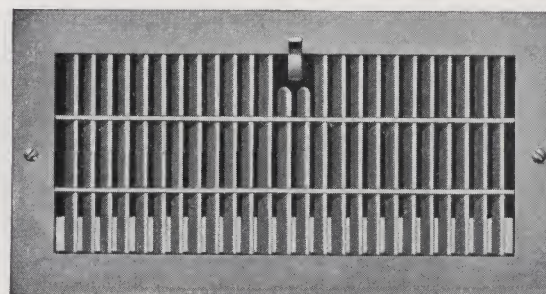
Size of Opening in Face:  $\frac{3}{8}$  inch wide.

Interior Bars: 14 Ga. (.078) x  $\frac{1}{2}$  inch Cold Rolled Steel.

Face Rim: Cold Rolled Steel.



No. 321 A — Air Flow to the Left. Angle of Deflection Adjustable from Straight to 45 degrees.



No. 321 A — Air Flow to the Right. Angle of deflection Adjustable from Straight to 45 degrees.

These registers can also be furnished with either vertical or horizontal Multiple Valves, as shown on page 11.

### REGISTERS LESS VALVES (Return Air Intakes)

Often it is desired that the intakes be an exact match in size, and capacity, with the registers used. These can be furnished without valves and without lever slots, and should be ordered as

No. 321 A-LV, and the style of setting frame specified. (See Page 9.) For prices, see table SV, Page 30.



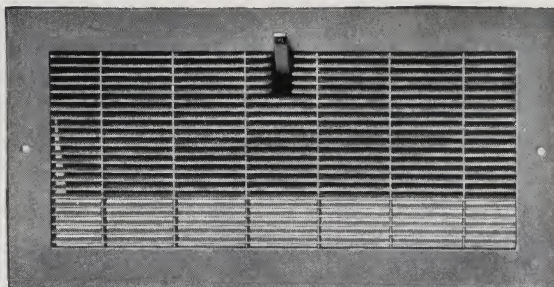
# Independent "Fabrikated" Fine Mesh Registers

REG. U. S. PAT. OFFICE

## No. 312 WITH DIRECTED AIR FLOW

Sizes and List Prices, Page 27, tables N and O. Capacities, Page 33

Furnished with any of the styles of setting frames shown on pages 8 and 9.



No. 312—With Straight Air Flow

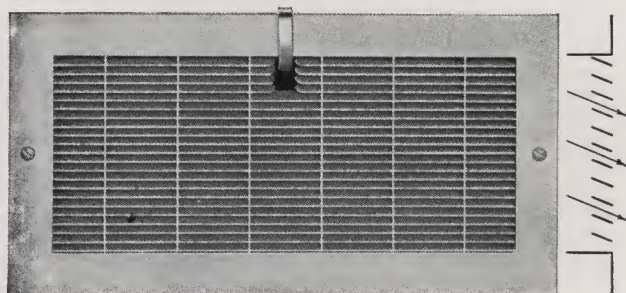
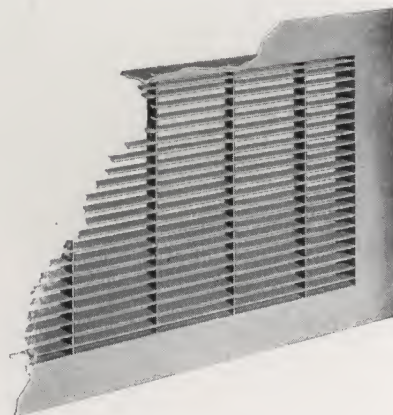
Openings in register face,  $\frac{1}{8} \times 1\frac{3}{4}$  inches. Interior Bars:  $\frac{1}{2}$  inch deep x .032 in. thick.

The interior grille bars are narrower and the openings between the bars smaller than on the "FABRIKATED" registers shown on the previous pages. This results in low visibility through the faces, and fine appearance. The openings are "pencil proof." The interior grille bars can be supplied so that the air flow will be directed straight outward or at angles of  $22\frac{1}{2}$  or 45 degrees, either downward or upward, or any combination thereof.

The Grille Bars are not adjustable as in the No. 311-A, described on page 4 but are mounted at the time of manufacture, for the fixed angle of deflection as specified by the purchaser.

The standard construction is with single valves as described on page 2, but these registers are also made with multiple valves as shown on page 11.

With the directional effect of the register face grille bars plus the added directional effect of the multiple valves, the air flow direction can be controlled, both vertically and horizontally.



No. 312—Downward Air Flow,  $22\frac{1}{2}^\circ$

**IMPORTANT:** Orders should specify the type of directional flow desired; if not otherwise ordered, straight directional flow will be furnished.

## Registers Less Valves (Return Air Intakes)

Often it is desired that the intakes be an exact match in size, and capacity, with the registers used. These can be furnished without valves and without the lever

slots, and should be ordered as No. 312-LV, and the style of setting frame specified (See page 9).

For prices see table SV, page 30.



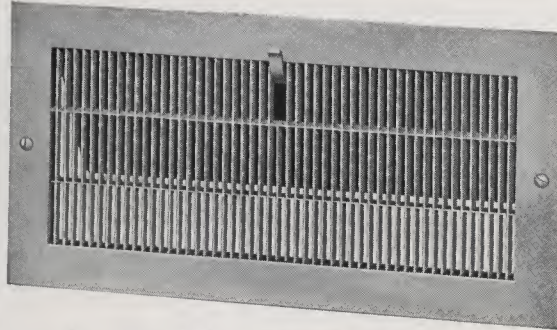
# Independent "Fabrikated" Fine Mesh Registers

REG. U. S. PAT. OFFICE

## No. 322 WITH DIRECTED AIR FLOW

Sizes and List Prices, Page 27, tables N and O. Capacities, Page 33

Furnished with any of the styles of setting frames shown on pages 8 and 9.

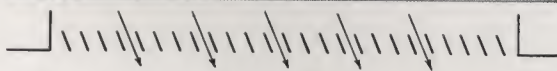
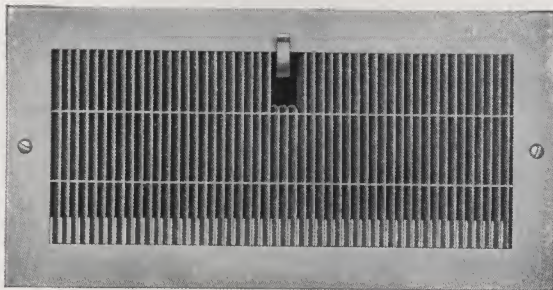


No. 322—With Straight Air Flow

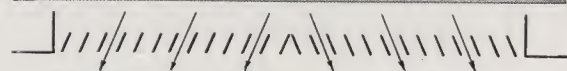
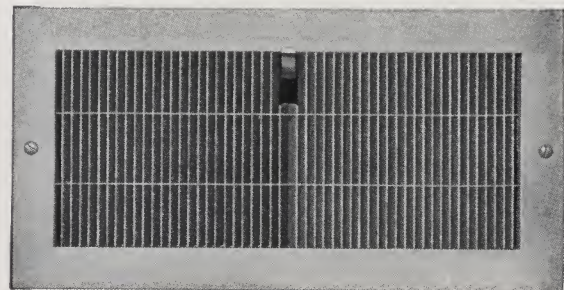
Openings in Register Face,  $\frac{1}{16}$  inch wide. Interior Bars,  $\frac{1}{2}$  inch deep x .032 in. thick.

This design is similar to the No. 312 shown on the opposite page but permits the air flow to be directed to the right and left, or in combinations, or groupings of deflections desired. Like the No. 312 registers, these angles of deflection are fixed at time of manufacture and are not adjustable after the registers are installed.

The standard construction is with single valves as described on page 2 but this register may be used in connection with the Multiple Valves as shown on page 11 and in this manner the air flow can be controlled both vertically and horizontally.

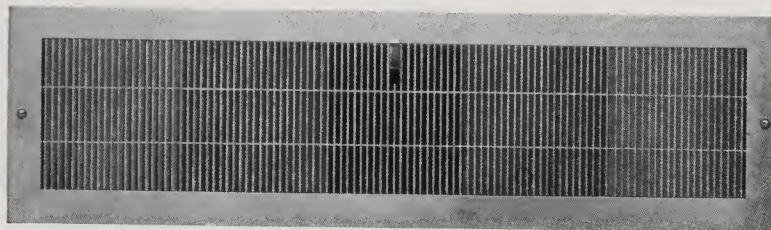


Air Flow can be All to the Right or All to the Left.



Deflection to the Right and Left in angles of either  $22\frac{1}{2}$  or 45 degrees.

Showing a few of the combinations possible for Directed Air Flow.



Many directions of Air Flow in one register. Complete coverage in a fan-like distribution.

**IMPORTANT:** The type and degree of air direction should be clearly stated in ordering; if not otherwise specified, straight directional flow will be furnished.

## Registers Less Valves (Return Air Intakes)

Often it is desired that the intakes be an exact match in size, and capacity, with the registers used. These can be furnished without valves and without lever slots, and should be ordered as

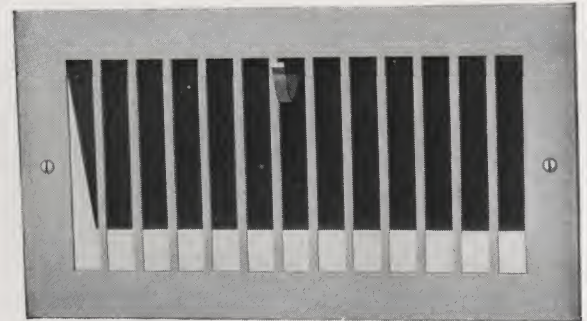
No. 322 LV — and the style of setting frame specified (See Page 9).  
For prices see table SV, page 30.



# Independent Wrought Steel Registers

The Faces of Perforated Metal  
Sizes and List Prices, Page 24, Tables A and B

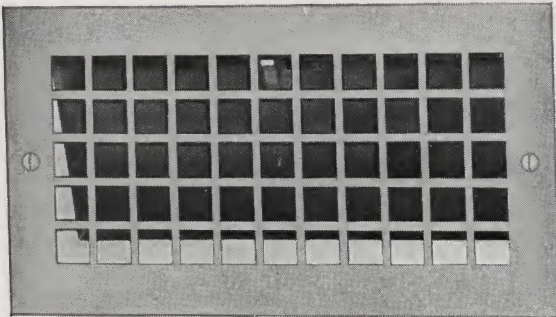
## SEE OUR FOLDER S-37



No. 158 (Capacities, Page 34)  
Openings  $\frac{5}{8}$  inch wide  
Upright bars  $\frac{3}{16}$  inch wide

Register Faces with vertical dimension of 8 inches or more are made with a horizontal bar across the center.  
Made with Straight Outer Edges Only.

No. 137 (Capacities, Page 35)  
Openings  $\frac{3}{8}$  inch wide, Upright bars  $\frac{1}{8}$  inch wide. Made with Beveled Outer Edges only.



No. 182 (Capacities, Page 33)  
Openings: .82 x .82 in. Crossbars, .18 in. wide. Made with straight outer edges only.

These registers are made with the styles of setting frames described on Pages 8 and 9.

In ordering, the style of frame should be specified.

Registers Less Valves can be furnished. For prices see table SV, page 30.

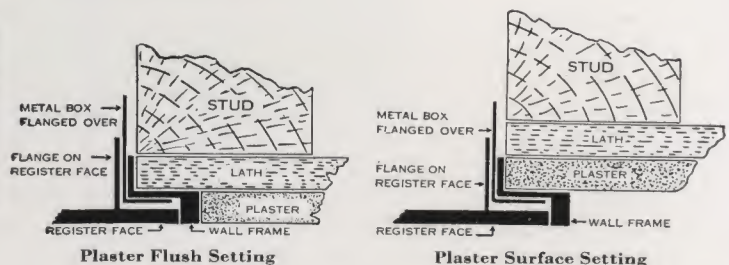
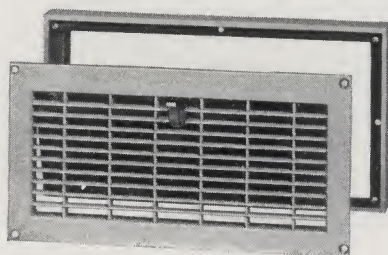
## STYLE WT SETTING FRAME

### For Wall Installations

### For Installation Before or After Lath and Plaster

The WT frame may be used with any of the wall registers shown on this and previous pages.

The wall frame and register are separate units, the register being removable from the frame. The user has the option of two methods of installation.



Plaster Flush Setting

Plaster Surface Setting

### To Set Flush with the Plaster:

The wall frame to be attached to the stackhead or duct before plastering, so that if the plaster is completed to the frame's outer edges, its outer surface and also the register face will be flush with the plaster.

**IMPORTANT:** The possibility of plaster cracking or rust discoloration around the frame should be given consideration before deciding upon the flush type of installation.

### Plaster Surface Setting:

The frame sets on the plaster surface, its outer flange covering any deficiencies in the plaster around the wall opening. With this method the register and frame is installed after the plastering is completed.



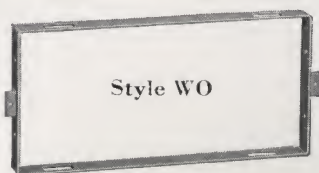
# Independent Setting Frames For Wall Registers

The style desired should be specified when ordering

Style WO may be installed either before or after lath and plaster.

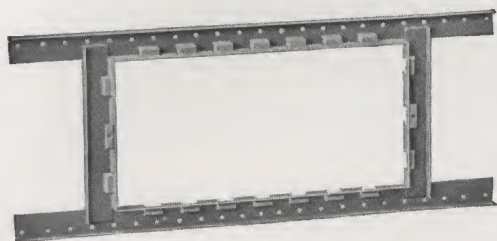
These frames set inside of the stack head flanges and are usually attached to them by sheet metal straps riveted to the stack head and turned back over the frame. Or, they may be attached by sheet metal screws. Slots are provided in the horizontal dimension; screw holes in the vertical dimension.

The register is screwed to the frame, to complete the installation. The outer rims of the face cover any plaster deficiency around the stack head.

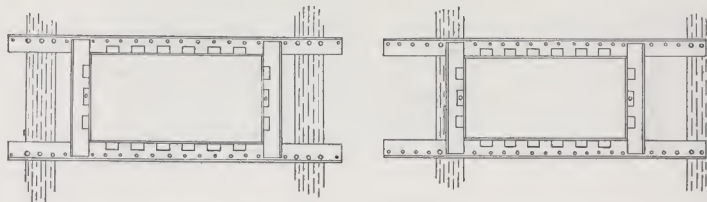
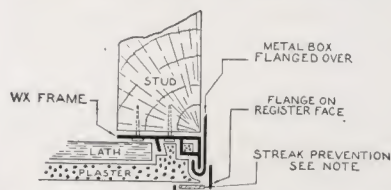


Style WO

## STYLE WX: For Installation Before Lath and Plaster



Standard Depth of Frame,  $\frac{5}{8}$  in.



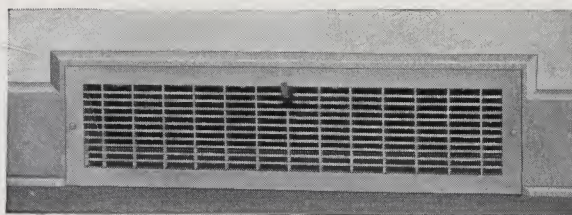
The frame arms are of sufficient length so that the stack head may be located in any position desired between the studs; in the center or at the right or left.

The stack head flanges should be made to extend through the frame opening, and of sufficient length so that they may be bent backward and over the outside of the frame edges, thus securing a tight and rigid connection between the stackhead and wall frame. The lath and plaster cover the arms, the plaster when completed being flush with the outer edges of the frame.

To complete the installation the register is screwed to the frame after plastering. The outer rims of the register face extend beyond the frame edges and cover any plaster deficiency or cracking around the frame.

**Note:** The rims of the register faces lend themselves to air-tightness being formed to provide space for felt, asbestos or plaster packing to seal the register to the wall.

## Wall Registers in the Baseboard



Any of the Independent Wall Registers shown on the preceding pages may be installed in the baseboard.

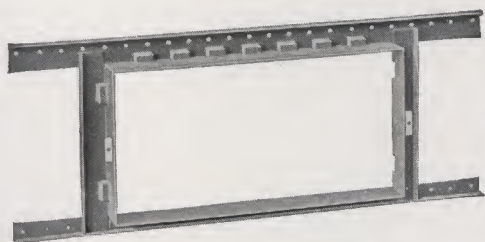
### STYLE BX FRAME

For installation previous to lath and plaster.  
Floor to stack head opening,  $\frac{5}{8}$  inch.

**Note:** The rims of the register faces provide space for felt, asbestos or plaster packing to seal the register to the baseboard.

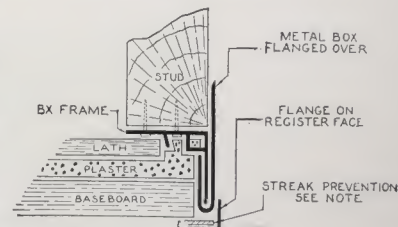
The BX stack head flanges should extend outward from the plaster line the thickness of the baseboard, plus  $\frac{1}{2}$  inch, to provide material to be bent backward and over the outside of the frame edges.

The BX frame arms are of sufficient length so that the stackhead may be located in any position desired between the studs; in the center or at the right or left.



Standard Depth of Frame  $1\frac{3}{8}$  in.

any position desired between the studs; in the center or at the right or left.



### STYLE WO FRAME: For Installation Either Before or After Lath and Plaster

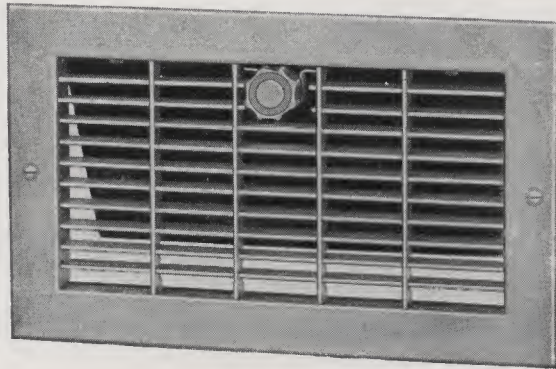
The WO frames, illustrated at the top of this page, may also be used with baseboard installations. The stackhead flanges should extend outward from the plaster line the thickness of the baseboard.



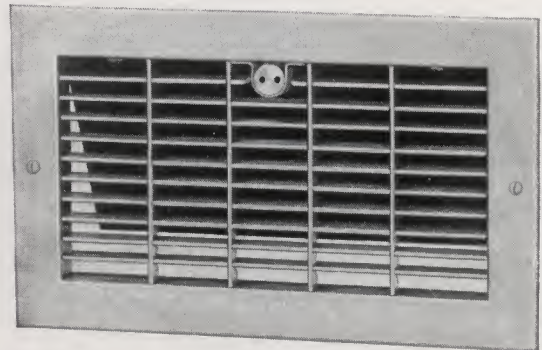
# Independent "Fabrikated" Air Conditioning Registers

REG. U. S. PAT. OFFICE

Single valve registers are all equipped with lever operating handles as illustrated throughout this catalogue. This is the usual requirement and is the style furnished unless otherwise specified. But any of the "Fabrikated" registers may be supplied with either knob or key valve control as shown below, at small added cost.



**Knob Control**  
List Price, each extra \$1.50

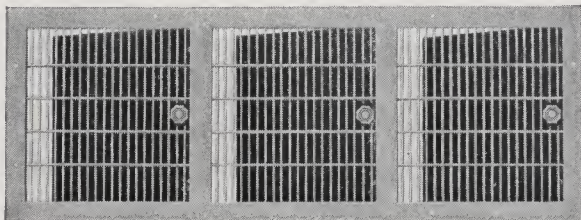


**Key Control**  
List Price, each extra \$1.25

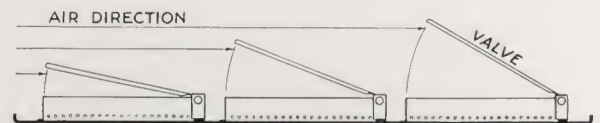
Can be supplied with any "Fabrikated" design.

## REGISTERS WITH TANDEM VALVES

Tandem valves, either horizontal or vertical, as illustrated below, can be furnished in practically any size and in various combinations with any of the "Fabrikated" Face designs. Each valve is operated independently and can be adjusted to any position thus enabling the engineer to control the amount of air flow and to balance the system.

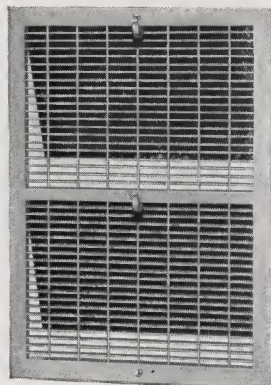


Either lever, knob or key operating device operates each valve individually. In ordering, the style of operating device desired should be specified.

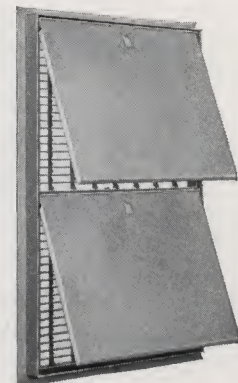


Illustrating the application of a register with vertically hung tandem valves.

The illustration above shows the No. 321 A "Fabrikated;" the grille bars may be individually adjusted to direct the air flow to the right or left. See page 5. With the No. 311 A "Fabrikated" the grille bars may be individually adjusted to direct the air flow either up or down. See page 4.



**No. 311 A**





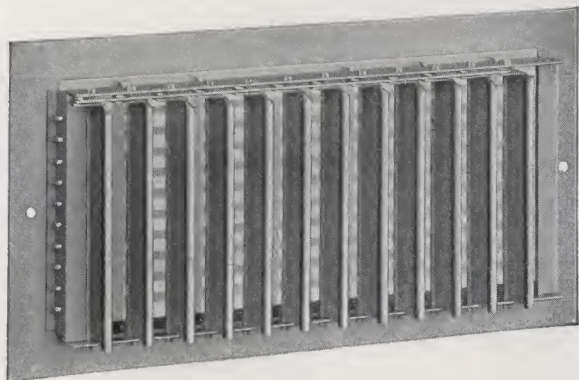
# Independent "Fabrikated" Air Conditioning Registers

REG. U. S. PAT. OFFICE

With Multiple Valves. For Wall, Baseboard or Ceiling. List Prices, Page 30, Table MV

All Air Conditioning Registers are furnished with single valves unless otherwise ordered.

But—any Wall or Baseboard Register shown in this catalogue can be furnished with Multiple Valves as illustrated on this page.



Style VMV No. 1—Back View

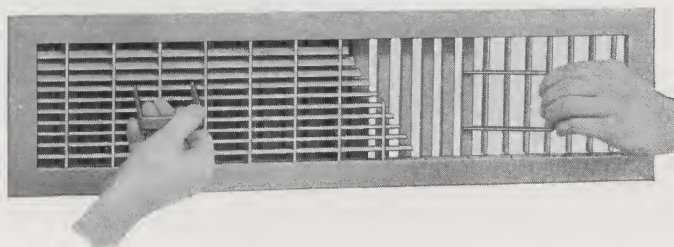
Showing valve mounting and method of operation

The valves swing from their edges and, when closed, lay flat against the flanges on the back of the register face. With the valves closed the register depth is 1 inch, except on the side, or end of the operating lever, which is  $1\frac{3}{4}$  inches. With the valves open the complete depth is  $1\frac{7}{8}$  inches. **Except:** If the valve length exceeds 16 inches the valves are made wider and the opened valve depth is  $2\frac{3}{4}$  inches.

Made in four Styles:

VMV No. 1—With the valves running parallel with the vertical dimension of the register. The valves connected to operate in unison.

VMV No. 2—With the valves parallel with the vertical dimension of the register. The valves **not** connected; each valve may be individually adjusted to direct the air flow to the right or left. See illustration below.



The illustration shows the No. 311 A "Fabrikated" register with VMV No. 2 valves. The grille bars may be individually adjusted to direct the air flow up or down. The valves may be individually adjusted to direct the air flow to the right or left.

With the No. 321 A "Fabrikated" register and HMV No. 2 valves the grille bars may be individually adjusted to direct the air flow to the right or left and the valves may be individually adjusted to direct the air flow up or down.

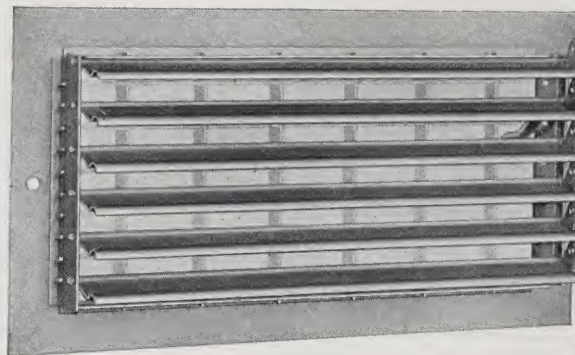
Practically any desired combination of directional air flow can be secured with these registers.

## REGISTERS FOR USE IN THE WALL OR CEILING

If any of the registers illustrated in this catalogue are located in the wall, out of hand reach from the floor, the valve lever can often be satisfactorily operated with a short pole. Or, if located in either the wall or ceiling, they can be operated by either chain or cord, the registers to be equipped with pulleys.

If pulleys are required, they should be specified at the time the order is placed, as they cannot be readily attached after the registers are installed.

FA Pulleys, per set of two (specify whether for use in the wall or ceiling) ..... list price \$ .50  
Cord, per yard ..... 3 cents net  
No. 00 Plated Brass Safety Chain, per yard ..... 20 cents net



Style HMV No. 1—Back View

Showing valve mounting and method of operation

HMV No. 1—With the valves running parallel with the horizontal dimension of the register. The valves connected to operate in unison.

HMV No. 2—With the valves parallel with the horizontal dimension of the register. The valves **not** connected; each valve may be individually adjusted to direct the air flow either up or down.

No. 10 Nickel Silver Bead Chain, per yard ..... 15 cents net  
Small metal pendants for the ends of bead chain are .....  
furnished without charge.

We recommend Bead Chain for best appearance.

Open and Shut Indicator Handles, for the ends of the chain or cord:

Black Japan, White Japan or Lacquer  
Finishes ..... 10 cents net per set  
Plated Finishes ..... 15 cents net per set

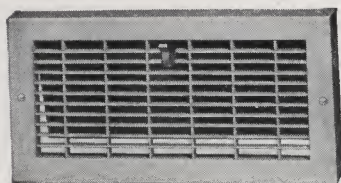


# Independent "Fabrikated" Baseboard Registers

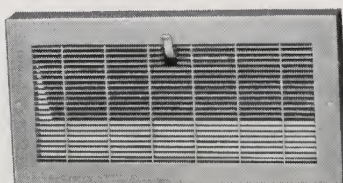
REG. U. S. PAT. OFFICE

With Side and Top Projecting Flanges extending outward  $\frac{7}{8}$  inch from the plaster line.

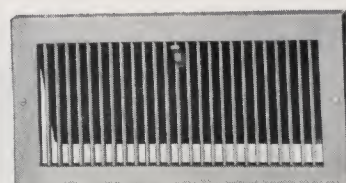
ONE PIECE STYLE — Sizes and List Prices, Pages 24, 25, 26 and 27. Capacities, Page 33.



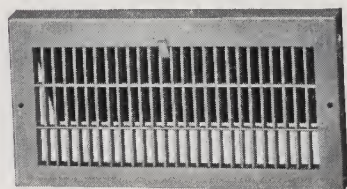
No. 311 A-BO, with Adjustable Grille Bars  
(See Page 4)  
No. 311 BO, with Grille Bars permanently  
set for straight outward flow.



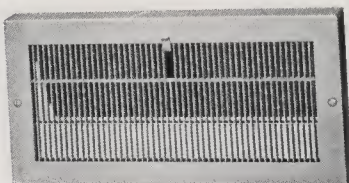
No. 312 BO  
With Directed Air Flow (See Page 6)



No. 211 BO



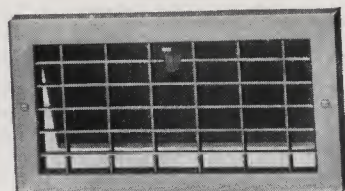
No. 321 A-BO, with Adjustable Grille Bars  
(See Page 5)  
No. 321 BO, with Grille Bars permanently  
set for straight outward flow.



No. 322 BO  
With Directed Air Flow (See Page 7)



No. 201 BO

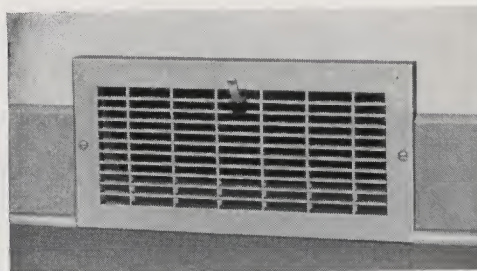


No. 300 BO

Distance from floor to stack head opening,  $\frac{5}{8}$  inch. Flanges for the connection with the stack head are provided on the back of the register face.

These registers may also be used with Style BX Frames as shown on page 9.

List prices with BX frames same as BT registers, table D page 24, table H page 25, table M page 26, table Q, page 27.



The illustration shows  
the register installed in  
the baseboard.

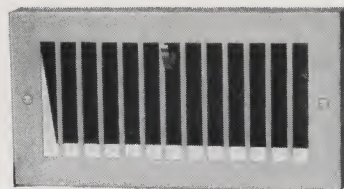
## INDEPENDENT WROUGHT STEEL BASEBOARD REGISTERS

With Side and Top Projecting Flanges extending outward  $\frac{7}{8}$  inch from the plaster line.

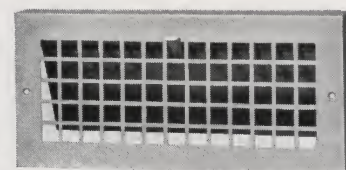
Perforated Metal

One Piece Style—Sizes and List Prices, Page 24, Table C.

SEE OUR  
FOLDER S-37



No. 137 BO  
Capacities, Page 35



No. 158 BO  
Capacities, Page 34

No. 182 BO  
Capacities, Page 33

Distance from floor to stack head opening,  $\frac{5}{8}$  inch. Flanges for connection with the stack head are provided on the back of the register face.

These registers may also be used with Style BX frames as shown on page 9. List prices with BX frames table D, page 24.

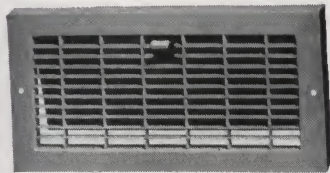


# Independent "Fabrikated" Baseboard Registers

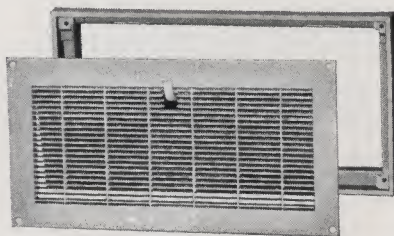
REG. U. S. PAT. OFFICE

With Side and Top Projecting Flanges extending outward  $\frac{7}{8}$  inch from the plaster line.

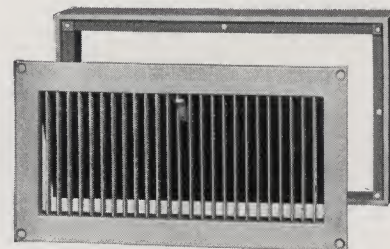
Two Piece Style—The Register Removable from the Frame  
Sizes and List Prices. Pages 24, 25, 26 and 27. Capacities, Page 33



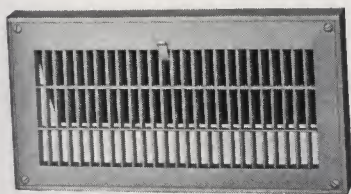
No. 311 A-BT, with Adjustable Grille Bars  
(See Page 4)  
No. 311 BT, with Grille Bars permanently  
set for straight outward flow.



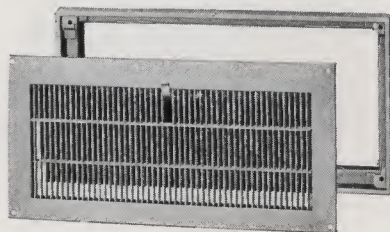
No. 312 BT  
With Directed Air Flow (See Page 6)



No. 211 BT



No. 321 A-BT, with Adjustable Grille Bars  
(See Page 5)  
No. 321 BT, with Grille Bars permanently  
set for straight outward flow.



No. 322 BT  
With Directed Air Flow (See Page 7)



No. 201 BT



No. 300 BT

Distance from floor to stack head opening,  $\frac{5}{8}$  inch.

The side and top frame flanges extend outward  $\frac{7}{8}$  inch from the plaster line so that, after the installation, the register is flush with baseboards of this thickness.

The stack head flanges turn over the inner edges of the frame.

## INDEPENDENT WROUGHT STEEL BASEBOARD REGISTERS

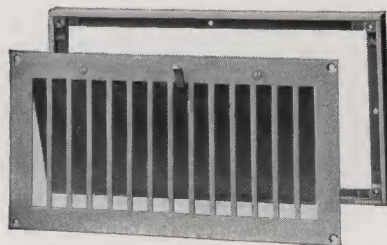
With Side and Top Projecting Flanges extending outward  $\frac{7}{8}$  inch from the plaster line.

Perforated Metal

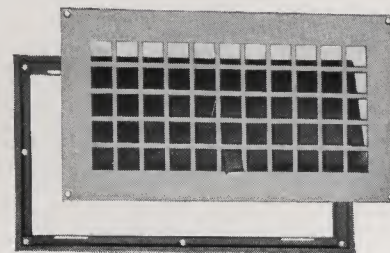
Two Piece Style—The Register Removable from the Frame

Sizes and List Prices, Page 24, Table D.

PRICES UPON  
APPLICATION



No. 237 BT  
Capacities, Page 35



No. 282 BT  
Capacities, Page 33

No. 258 BT  
Capacities, Page 34

Distance from floor to stack head opening  $\frac{5}{8}$  inch.

The stack head flanges turn over the inner edges of the frame.

## Registers with Multiple Valves

Any of the registers shown on this page can be supplied with multiple valves as shown on page 11.

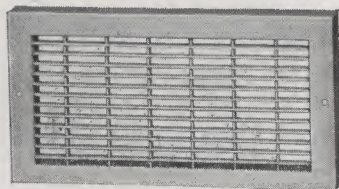


## Independent "Fabrikated" Baseboard Intakes

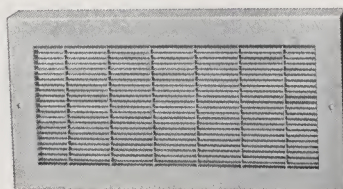
REG. U. S. PAT. OFFICE

With Side and Top Projecting Flanges extending outward  $\frac{7}{8}$  inch from the plaster line.

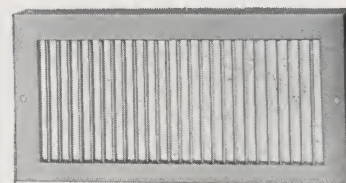
Sizes and List Prices, Page 29. Capacities, Page 33.



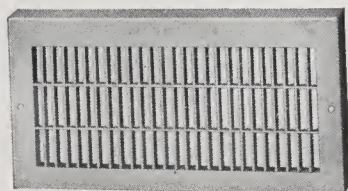
No. 311A-BBI, with Adjustable Grille Bars  
(See Page 4)  
No. 311 BBI, with Grille Bars permanently  
set for straight flow.



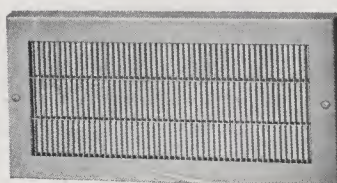
No. 312 BBI  
With Directed Air Flow (See Page 6)



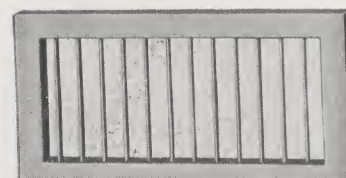
No. 211 BBI



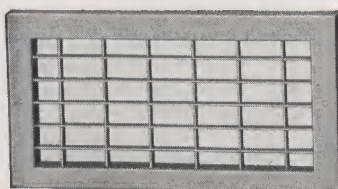
No. 321A-BBI, with Adjustable Grille Bars  
(See Page 5)  
No. 321 with Grille Bars permanently  
set for straight flow.



No. 322 BBI  
With Directed Air Flow (See Page 7)



No. 201 BBI



No. 300 BBI

The side and top projecting flanges are a part of the grille. After installation the intakes are flush with the usual  $\frac{7}{8}$  inch baseboard. They are attached to the wall with screws.

These intakes are the same in overall sizes, daylight opening sizes and capacities as the "Fabrikated" one-piece baseboard registers shown on page 12.

These intakes are equally suitable for outlets where no valves are required. If desired, they may be installed with BX or WO (see page 9) setting frames. List prices of frames table WF page 30.

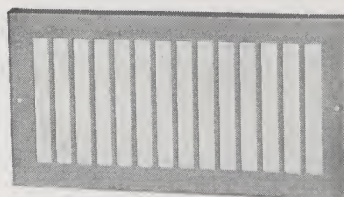
**Daylight Opening Sizes:** Horizontal dimension,  $\frac{3}{4}$  inch less than intake catalogue sizes.  
Vertical dimension,  $1\frac{1}{8}$  inch less than intake catalogue size.

## Independent Wrought Steel Air Conditioning Baseboard Intakes

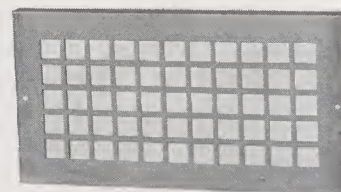
With Side and Top Projecting Flanges extending outward  $\frac{7}{8}$  inch from the plaster line.  
Perforated Metal

Sizes and List Prices, Page 29, Table V. Capacities, Pages 33, 34 and 35.

SEE OUR  
FOLDER S-37



No. 37 BBI



No. 58 BBI



No. 82 BBI

As with the "Fabrikated" Intakes described above, the side and top projecting flanges are a part of the grille and are attached to the wall with screws. These intakes are the same in overall sizes, daylight opening sizes and capacities as the one-piece baseboard registers of the same designs shown on page 12.

Suitable for outlets when no valves are required. If desired, they may be installed with BX or WO setting frames (see page 9). List prices of frames, table WF, page 30.

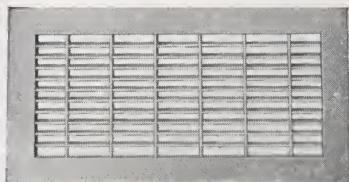


# Independent "Fabrikated" Wall Grilles

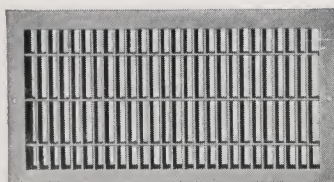
REG. U. S. PAT. OFFICE

Rear flanges to fit into wall openings are a part of each grille. Not equipped with wall frames. The daylight opening sizes are larger and capacities greater than those of Air Conditioning Registers of corresponding stack head sizes.

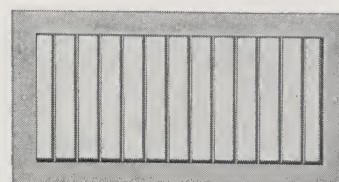
Sizes and List Prices, Tables R, S, T and U, Page 28. Capacities, Pages 34 and 35.



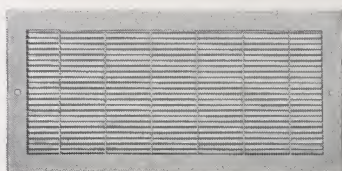
No. 311 A-WG, with Adjustable Grille Bars (See Page 4)  
No. 311 WG, with Grille Bars permanently set for straight outward flow.



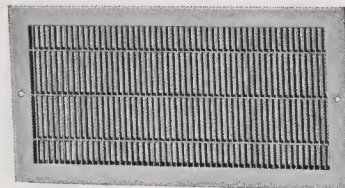
No. 321 A-WG, with Adjustable Grille Bars (See Page 5)  
No. 321 WG, with Grille Bars permanently set for straight outward flow



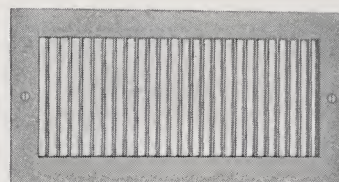
No. 201 WG



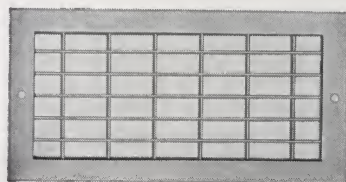
No. 312, WG, with Directed Air Flow (See Page 6)



No. 322 WG, with Directed Air Flow (See Page 7)



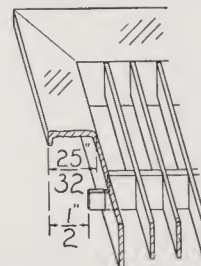
No. 211 WG



No. 300 WG

## Standard Rim Width

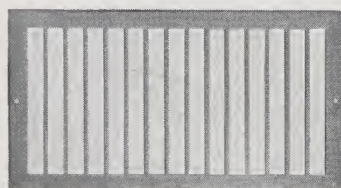
"Fabrikated" Wall Grilles,  $\frac{1}{2}$  inch beyond catalogue listed sizes, all four sides. Special overall sizes can be supplied if required



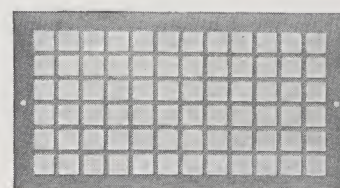
## INDEPENDENT WROUGHT STEEL WALL GRILLES (Perforated Metal)

Sizes and List Prices, Table R, Page 28. Capacities, Pages 34 and 35.

SEE OUR  
FOLDER S-37



No. 37 WG, Beveled Edges



No. 58 WG, Straight Outer Edges

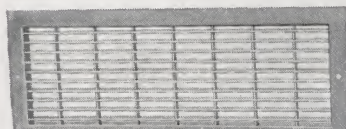
Standard Rim Width, Wrought Steel Wall Grilles,  $\frac{3}{4}$  inch beyond catalogue sizes, all four sides.

No. 82 WG, Straight Outer Edges

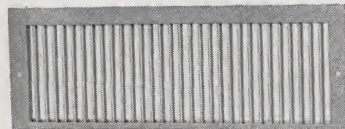
## INDEPENDENT RAI INTAKES

Sizes and List Prices, Tables R, S, T and U, Page 28. Capacities, Pages 34 and 35.

For flush installations in the baseboard. Bottom rims cut away.  
Any of the wall grilles illustrated above can be furnished in this style.



No. 311 RAI



No. 211 RAI

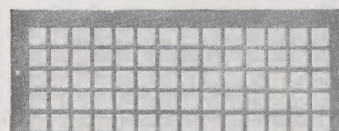


No. 312 RAI

SEE OUR  
FOLDER S-37



No. 37 RAI



No. 82 RAI

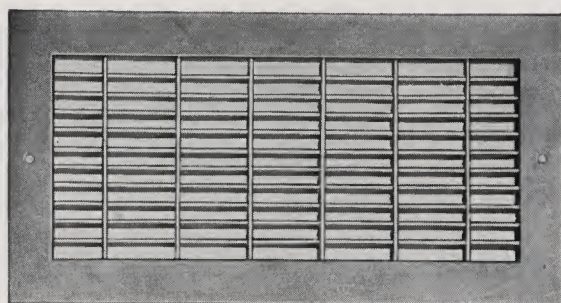
No. 58 RAI



# Independent "Fabrikated" Grilles

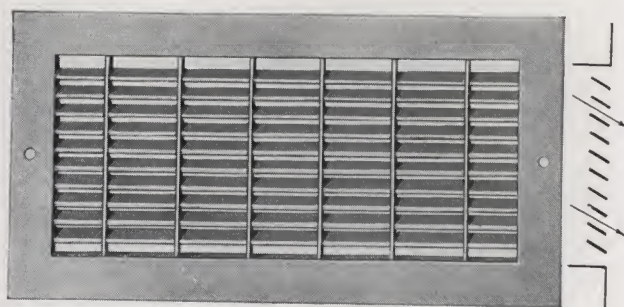
REG. U. S. PAT. OFFICE

## ADJUSTABLE DIRECTED AIR FLOW

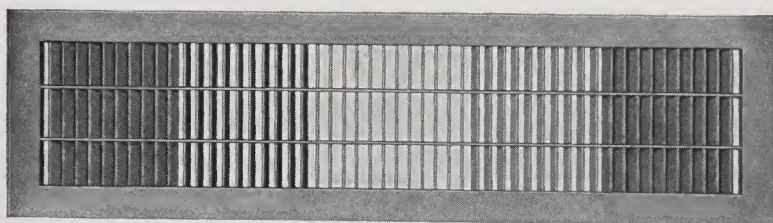


No. 311 A Grille—With grille bars adjusted for straight flow.

The adjustable feature is fully explained on pages 4 and 5. This same method of easy adjustment is built into the larger grilles, for use in commercial work. The adjustment may be made at the time of or after the installation has been completed. Or if the angle of deflection is known, this adjustment may be made at the factory.



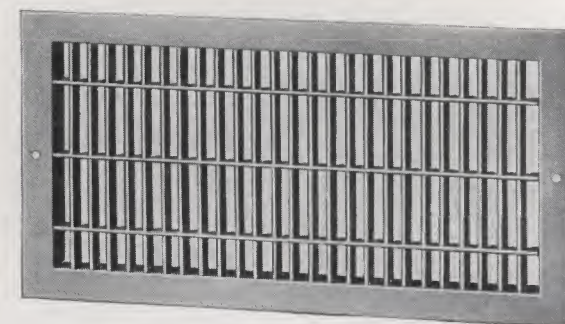
No. 311 A Grille, showing downward air flow.



No. 321 A Grille: Combination — Right, Left, and Straight Air Flow.

The No. 321 A Design gives a Directed Air Flow to the right or left. Very much like the No. 311 A, except that the adjustable grille bars are set in a vertical position, thus giving the right and left deflection. The angles of deflection, or the combinations to be had, are practically unlimited.

The many advantages of these grilles are self-evident to the engineer who has been waiting for this adjustable feature, which now places him in complete control of the directional air flow on each installation.



No. 321 A Grille, with grille bars adjusted for straight flow.

**NOTE:** Independent Adjustable Air Flow Grilles can be supplied in practically any size. Prices of many sizes are shown on Page 28, Table T. Prices of other sizes will be furnished upon receipt of specifications.



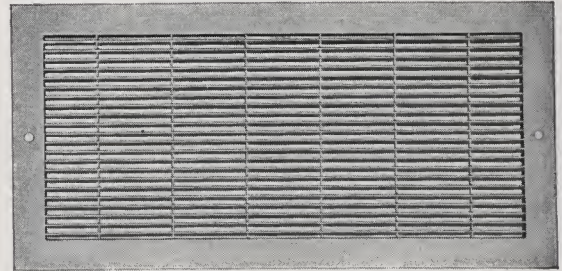
# Independent "Fabrikated" Fine Mesh Grilles

REG. U. S. PAT. OFFICE

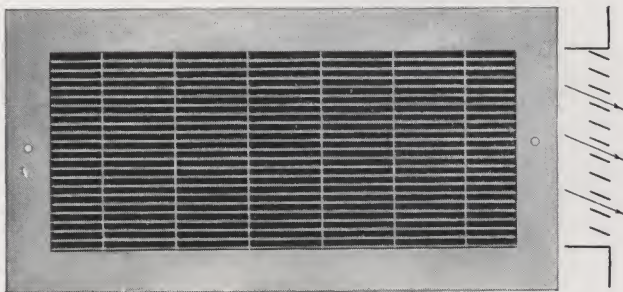
## DIRECTED AIR FLOW

Nos. 312 and 322 Grilles are of Independent "Fabrikated" construction with finer mesh and narrower interior grille bars than the designs illustrated on the opposite page. The grille bars are  $\frac{1}{2}$ " deep x .032" thick; openings  $\frac{3}{16}$  x  $1\frac{23}{32}$  in.

The Nos. 312 and 322 grilles are made at the time of assembly in our factory with the interior grille bars set for straight flow or for directional flow of either  $22\frac{1}{2}^\circ$  or  $45^\circ$  or any combination thereof, as may be specified. The grille bars are not adjustable as in the Nos. 311 A and 321 A; the definite directional flow is built into the grilles at the time of manufacture.

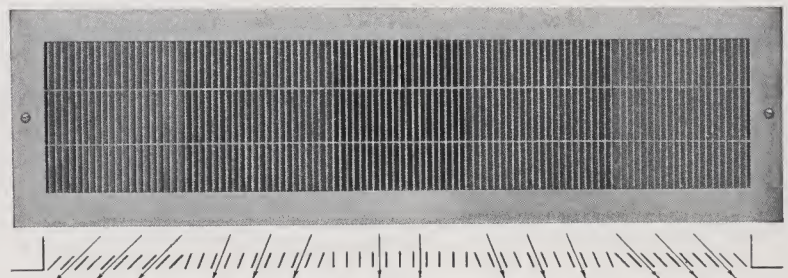


No. 312—With grille bars for straight air flow.

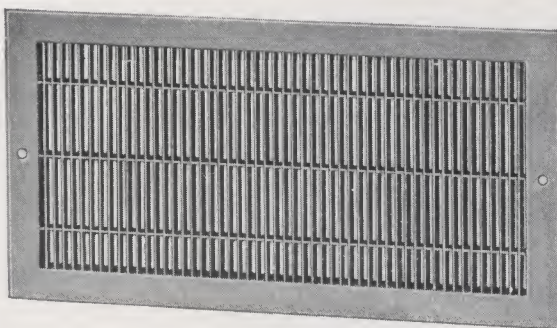


No. 312—Up or Down Deflection of  $22\frac{1}{2}^\circ$  or  $45^\circ$  in either direction.

No. 322. The air flow may be deflected to the right or left or straight ahead. Many combinations of right or left deflection can be had. These angles of deflection, which may be either  $22\frac{1}{2}^\circ$  or  $45^\circ$ , are fixed at time of assembly.



Combination—Straight, with  $22\frac{1}{2}^\circ$  and  $45^\circ$  Right and Left.



No. 322—Straight Air Flow.

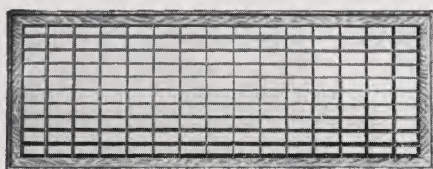
Where volume control is desired, as well as Directed Air Flow, these grilles can be furnished with the standard single valves or with multiple valves, as shown on page 11. Either the single or the multiple valves can be furnished in "Tandem" mountings as shown on page 10.

**NOTE:** The Nos. 312 and 322 grilles can be furnished in practically any size. List Prices of many sizes are shown on Page 28, Table U. Prices of other sizes will be furnished upon receipt of specifications.



# Independent "Fabrikated" Cold Air Floor Faces

REG. U. S. PAT. OFFICE

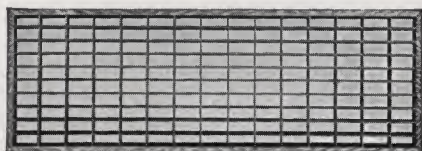


Standard "Fabrikated"

No. 130 BE: With beveled outer edges. The outer rims, approximately one inch wider all four sides than the floor opening size, are usually set on the surface of the floor.

No. 130 SE: With straight outer edges, rims approximately 1/2 inch wider all four sides than the floor opening size.

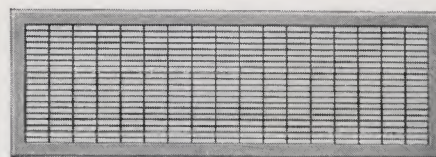
Face Openings: 3/4 x 1 1/8 in. (approximate). Uniform in design with No. 300 Forced Air Register.



Floor Flush "Fabrikated"

No. 130 FF: For use where the face is to be rabbetted into the floor and to set flush with it. Outer rims 1/4 inch wider all four sides than floor opening size.

Face Openings: 3/4 x 1 1/8 in. (approximate). Uniform in design with No. 300 Forced Air Registers.



Close Mesh "Fabrikated"

Face Openings: 3/8 x 1 1/8 in. (approximate).

Uniform in design with No. 311 Registers.

No. 131 BE, Close Mesh: With beveled outer edges.

No. 131 SE, Close Mesh: With straight outer edges, rims approximately 1/2 inch wider all four sides than the floor opening size.

No. 131 FF, Close Mesh: Outer Edges not beveled, rims 1/4 in. wider, all four sides, than floor opening size.

"Fabrikated" Construction is Strong because it uses material to secure the utmost supporting strength. The interior is made up of steel strips set on edge the same as girders of a bridge, the ends of the strips extending through openings in the legs of the angle frame and are turned over the outer surface of the legs to add strength and rigidity.

Interior Steel Strips; 14 ga. (.078 in.). The short way of the face the strips are from 3/4 in. to 1 1/4 in. deep depending upon the size of the face. The long strips 1/2 in. deep.

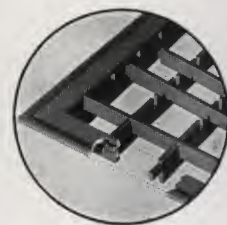


Table CAF—Sizes and List Prices

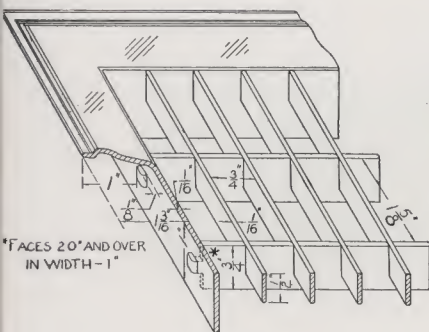
Approximate Overall Sizes, more than floor opening sizes:

With Beveled Edges (BE), 2 in. With Straight Edges (SE), 1 in. With Floor Flush Edges (FF), 1/2 in.

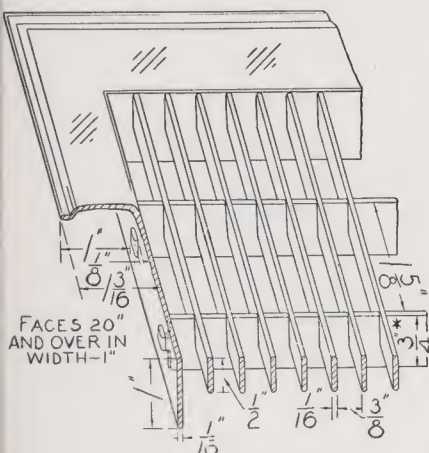
Approximate Daylight Opening Sizes: 3/8 in. each dimension less than floor opening sizes.

To Fit Floor Opening Size Inches	Open (Free) Area No. 130 Standard "Fabrikated" Sq. Inches	Open (Free) Area No. 131 Close Mesh "Fabrikated" Sq. Inches	Black Japanned or Prime Coat	Imitation Oak or Lacquered Finishes	Electro-plated	
					Ox. Copper Nickel, Brass or Bronze	Chromium or Sanded Finishes
4 x 10	31	28	\$ .90	\$1.00	\$1.35	\$1.80
5 x 10	39	35	.95	1.05	1.45	1.90
6 x 10	48	42	1.00	1.10	1.50	2.00
8 x 10	65	58	1.10	1.25	1.65	2.20
4 x 12	37	33	1.10	1.25	1.65	2.20
5 x 12	48	43	1.15	1.30	1.75	2.30
6 x 12	58	51	1.20	1.35	1.80	2.40
8 x 12	78	69	1.30	1.45	1.95	2.60
9 x 12	88	79	1.50	1.70	2.25	3.00
10 x 12	99	89	1.70	1.90	2.55	3.40
4 x 14	44	40	1.40	1.55	2.10	2.80
5 x 14	56	50	1.50	1.70	2.25	3.00
6 x 14	68	60	1.55	1.75	2.35	3.10
8 x 14	92	82	1.65	1.85	2.50	3.30
10 x 14	116	104	2.00	2.25	3.00	4.00
12 x 14	139	125	2.50	2.80	3.75	5.00
5 x 16	64	58	1.80	2.00	2.70	3.60
6 x 16	78	69	1.90	2.15	2.85	3.80
8 x 16	105	94	2.00	2.25	3.00	4.00
10 x 16	133	119	2.30	2.60	3.45	4.60
6 x 20	98	87	2.50	2.80	3.75	5.00
8 x 20	133	119	2.70	3.00	4.05	5.40
10 x 20	167	150	3.00	3.35	4.50	6.00
4 x 24	75	67	2.80	3.15	4.20	5.60
6 x 24	118	105	3.00	3.35	4.50	6.00
8 x 24	159	142	3.20	3.60	4.80	6.40
10 x 24	201	180	3.40	3.80	5.10	6.80
12 x 24	238	214	3.75	4.20	5.65	7.50
14 x 24	282	253	4.10	4.60	6.15	8.20
4 x 30	95	85	3.20	3.60	4.80	6.40
6 x 30	148	131	3.40	3.80	5.10	6.80
8 x 30	201	179	3.60	4.05	5.40	7.20
10 x 30	254	226	3.75	4.20	5.65	7.50
12 x 30	301	271	4.00	4.50	6.00	8.00
14 x 30	354	317	4.60	5.15	6.90	9.20
16 x 30	407	365	5.50	6.15	8.25	11.00
18 x 30	456	409	6.10	6.85	9.15	12.20

Additional Sizes can be furnished.



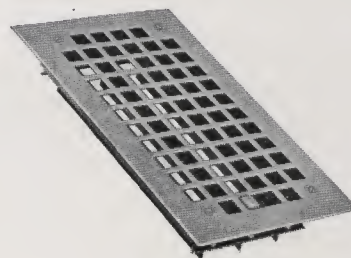
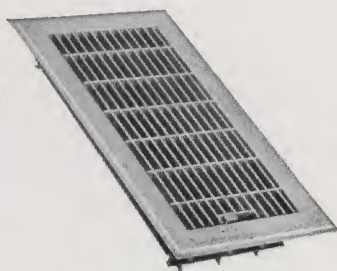
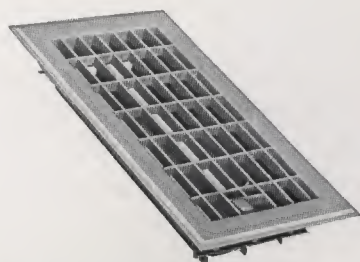
No. 130BE



No. 131BE



# Independent Floor Registers With Multiple Valves



## No. 30—Standard "Fabrikated"

Uniform in design with  
No. 300 Forced Air Registers.  
Face Openings:  $\frac{3}{4} \times 1\frac{11}{16}$  in. (approximate)  
The construction of the face is shown on  
page 18.

No. 30 BE: With beveled outer edges as  
illustrated above.

No. 30 SE: With outer edges straight.

No. 30 FF: Floor flush, with outer rims  $\frac{1}{4}$   
inch wider all four sides than floor opening  
size. For use where the face is to be  
rabbetted into the floor and to set flush  
with it. Illustrated as a face on page 18.

The beveled edge is standard and is the style  
furnished unless otherwise specified.

## No. 31—Close Mesh "Fabrikated"

Uniform in design with  
No. 311 Forced Air Registers.  
Face Openings:  $\frac{3}{8} \times 1\frac{11}{16}$  in. (approximate)  
The construction of the face is shown on  
page 18.

No. 31 BE: With beveled outer edges.

No. 31 SE: With outer edges straight.

No. 31 FF: With outer rims  $\frac{1}{4}$  inch wider  
all four sides than floor opening size.

The beveled edge is standard and is the style  
furnished unless otherwise specified.

## No. 12-75 Wrought Steel

The faces are of perforated metal.

Similar in design to the Nos. 182 and 282  
Forced Air Registers.

Openings,  $\frac{3}{4} \times \frac{3}{4}$  in. Cross bars,  $\frac{1}{4}$  in. wide.

Not made with beveled outer edges.

Table FR—Sizes and List Prices—Floor Registers

Floor Registers Can Be Supplied in Practically Any Size

Catalogue showing all standard sizes, with list prices, sent upon request

To fit Floor Opening Size Inches	Open (Free) Area No. 30 Standard "Fabri- kated" Square Inches	Open (Free) Area No. 31 Close Mesh "Fabri- kated" Square Inches	Open (Free) Area No. 12-75 Wrought Steel Registers Square Inches	Overall Size "Fabri- kated" With Beveled Edges (Approx- imate) Inches	Overall Size "Fabri- kated" Floor Flush Pattern Inches	Overall Size "Fabri- kated" Outer Edges Straight Inches	Overall Size No. 12-75 Wrought Steel Inches	Black Jap- anned or Prime Coat	Imita- tion Oak or Lacq- uered Fin- ishes	Electroplated	
										Ox. Copper Nickel, Brass or Bronze	Chro- mium or Sanded Finishes
4 x 8	24	21	16	5 $\frac{3}{4}$ x 9 $\frac{3}{4}$	4 $\frac{1}{2}$ x 8 $\frac{1}{2}$	5 x 9	5 $\frac{3}{4}$ x 9 $\frac{3}{4}$	\$1.45	\$1.55	\$1.85	\$2.25
4 x 10	30	26	20	5 $\frac{3}{4}$ x 11 $\frac{3}{4}$	4 $\frac{1}{2}$ x 10 $\frac{1}{2}$	5 x 11	5 $\frac{3}{4}$ x 11 $\frac{3}{4}$	1.55	1.65	2.00	2.45
4 x 12	36	32	24	5 $\frac{3}{4}$ x 13 $\frac{3}{4}$	4 $\frac{1}{2}$ x 12 $\frac{1}{2}$	5 x 13	5 $\frac{3}{4}$ x 13 $\frac{3}{4}$	1.70	1.85	2.25	2.80
4 x 15	45	40	31	5 $\frac{3}{4}$ x 16 $\frac{3}{4}$	4 $\frac{1}{2}$ x 15 $\frac{1}{2}$	5 x 16	5 $\frac{3}{4}$ x 16 $\frac{3}{4}$	2.60	2.80	3.40	4.20
4 x 18	56	49	38	5 $\frac{3}{4}$ x 19 $\frac{3}{4}$	4 $\frac{1}{2}$ x 18 $\frac{1}{2}$	5 x 19	5 $\frac{3}{4}$ x 19 $\frac{3}{4}$	3.50	3.75	4.55	5.55
6 x 8	36	32	24	7 $\frac{3}{4}$ x 9 $\frac{3}{4}$	6 $\frac{1}{2}$ x 8 $\frac{1}{2}$	7 x 9	7 $\frac{3}{4}$ x 9 $\frac{3}{4}$	1.55	1.65	2.00	2.45
6 x 10	45	41	31	7 $\frac{3}{4}$ x 11 $\frac{3}{4}$	6 $\frac{1}{2}$ x 10 $\frac{1}{2}$	7 x 11	7 $\frac{3}{4}$ x 11 $\frac{3}{4}$	1.60	1.70	2.10	2.60
6 x 12	56	49	38	7 $\frac{3}{4}$ x 13 $\frac{3}{4}$	6 $\frac{1}{2}$ x 12 $\frac{1}{2}$	7 x 13	7 $\frac{3}{4}$ x 13 $\frac{3}{4}$	1.80	1.95	2.40	3.00
6 x 14	65	57	45	7 $\frac{3}{4}$ x 15 $\frac{3}{4}$	6 $\frac{1}{2}$ x 14 $\frac{1}{2}$	7 x 15	7 $\frac{3}{4}$ x 15 $\frac{3}{4}$	2.55	2.75	3.35	4.10
6 x 16	74	66	51	7 $\frac{3}{4}$ x 17 $\frac{3}{4}$	6 $\frac{1}{2}$ x 16 $\frac{1}{2}$	7 x 17	7 $\frac{3}{4}$ x 17 $\frac{3}{4}$	3.40	3.65	4.35	5.30
6 x 18	84	74	58	7 $\frac{3}{4}$ x 19 $\frac{3}{4}$	6 $\frac{1}{2}$ x 18 $\frac{1}{2}$	7 x 19	7 $\frac{3}{4}$ x 19 $\frac{3}{4}$	4.15	4.40	5.25	6.35
8 x 8	49	44	33	9 $\frac{3}{4}$ x 9 $\frac{3}{4}$	8 $\frac{1}{2}$ x 8 $\frac{1}{2}$	9 x 9	9 $\frac{3}{4}$ x 9 $\frac{3}{4}$	1.60	1.70	2.10	2.60
8 x 10	62	55	42	9 $\frac{3}{4}$ x 11 $\frac{3}{4}$	8 $\frac{1}{2}$ x 10 $\frac{1}{2}$	9 x 11	9 $\frac{3}{4}$ x 11 $\frac{3}{4}$	1.70	1.85	2.25	2.80
8 x 12	75	67	51	9 $\frac{3}{4}$ x 13 $\frac{3}{4}$	8 $\frac{1}{2}$ x 12 $\frac{1}{2}$	9 x 13	9 $\frac{3}{4}$ x 13 $\frac{3}{4}$	1.90	2.05	2.55	3.20
8 x 14	88	78	60	9 $\frac{3}{4}$ x 15 $\frac{3}{4}$	8 $\frac{1}{2}$ x 14 $\frac{1}{2}$	9 x 15	9 $\frac{3}{4}$ x 15 $\frac{3}{4}$	2.95	3.15	3.80	4.60
8 x 16	101	89	69	9 $\frac{3}{4}$ x 17 $\frac{3}{4}$	8 $\frac{1}{2}$ x 16 $\frac{1}{2}$	9 x 17	9 $\frac{3}{4}$ x 17 $\frac{3}{4}$	3.85	4.10	4.85	5.85
8 x 18	113	101	78	9 $\frac{3}{4}$ x 19 $\frac{3}{4}$	8 $\frac{1}{2}$ x 18 $\frac{1}{2}$	9 x 19	9 $\frac{3}{4}$ x 19 $\frac{3}{4}$	5.05	5.35	6.25	7.45
9 x 9	63	57	43	10 $\frac{3}{4}$ x 10 $\frac{3}{4}$	9 $\frac{1}{2}$ x 9 $\frac{1}{2}$	10 x 10	11 x 11	1.90	2.05	2.55	3.20
9 x 12	85	76	58	10 $\frac{3}{4}$ x 13 $\frac{3}{4}$	9 $\frac{1}{2}$ x 12 $\frac{1}{2}$	10 x 13	11 x 14	2.15	2.35	2.90	3.65
9 x 14	99	89	68	10 $\frac{3}{4}$ x 15 $\frac{3}{4}$	9 $\frac{1}{2}$ x 14 $\frac{1}{2}$	10 x 15	11 x 16	3.20	3.40	4.15	5.05
9 x 16	113	102	78	10 $\frac{3}{4}$ x 17 $\frac{3}{4}$	9 $\frac{1}{2}$ x 16 $\frac{1}{2}$	10 x 17	11 x 18	4.25	4.50	5.35	6.40
9 x 18	128	114	88	10 $\frac{3}{4}$ x 19 $\frac{3}{4}$	9 $\frac{1}{2}$ x 18 $\frac{1}{2}$	10 x 19	11 x 20	5.35	5.65	6.65	7.90
10 x 10	79	71	54	11 $\frac{3}{4}$ x 11 $\frac{3}{4}$	10 $\frac{1}{2}$ x 10 $\frac{1}{2}$	11 x 11	12 x 12	2.25	2.45	3.05	3.85
10 x 12	95	85	65	11 $\frac{3}{4}$ x 13 $\frac{3}{4}$	10 $\frac{1}{2}$ x 12 $\frac{1}{2}$	11 x 13	12 x 14	2.40	2.60	3.25	4.10
10 x 14	112	100	76	11 $\frac{3}{4}$ x 15 $\frac{3}{4}$	10 $\frac{1}{2}$ x 14 $\frac{1}{2}$	11 x 15	12 x 16	3.40	3.65	4.40	5.40
10 x 16	127	115	87	11 $\frac{3}{4}$ x 17 $\frac{3}{4}$	10 $\frac{1}{2}$ x 16 $\frac{1}{2}$	11 x 17	12 x 18	4.50	4.80	5.65	6.80
10 x 18	143	129	98	11 $\frac{3}{4}$ x 19 $\frac{3}{4}$	10 $\frac{1}{2}$ x 18 $\frac{1}{2}$	11 x 19	12 x 20	5.55	5.85	6.90	8.25
12 x 12	116	104	78	13 $\frac{3}{4}$ x 13 $\frac{3}{4}$	12 $\frac{1}{2}$ x 12 $\frac{1}{2}$	13 x 13	14 x 14	3.60	3.85	4.70	5.80
12 x 14	134	121	92	13 $\frac{3}{4}$ x 15 $\frac{3}{4}$	12 $\frac{1}{2}$ x 14 $\frac{1}{2}$	13 x 15	14 x 16	4.25	4.55	5.50	6.75
12 x 15	144	131	99	13 $\frac{3}{4}$ x 16 $\frac{3}{4}$	12 $\frac{1}{2}$ x 15 $\frac{1}{2}$	13 x 16	14 x 17	4.75	5.05	6.05	7.35
12 x 16	153	139	105	13 $\frac{3}{4}$ x 17 $\frac{3}{4}$	12 $\frac{1}{2}$ x 16 $\frac{1}{2}$	13 x 17	14 x 18	5.25	5.55	6.60	7.95
12 x 18	172	157	119	13 $\frac{3}{4}$ x 19 $\frac{3}{4}$	12 $\frac{1}{2}$ x 18 $\frac{1}{2}$	13 x 19	14 x 20	6.45	6.80	7.95	9.45
14 x 14	159	142	108	15 $\frac{3}{4}$ x 15 $\frac{3}{4}$	14 $\frac{1}{2}$ x 14 $\frac{1}{2}$	15 x 15	16 x 16	5.65	6.00	7.10	8.55
14 x 16	182	163	123	15 $\frac{3}{4}$ x 17 $\frac{3}{4}$	14 $\frac{1}{2}$ x 16 $\frac{1}{2}$	15 x 17	16 x 18	6.85	7.20	8.40	9.95
14 x 18	206	185	139	15 $\frac{3}{4}$ x 19 $\frac{3}{4}$	14 $\frac{1}{2}$ x 18 $\frac{1}{2}$	15 x 19	16 x 20	8.10	8.50	9.80	11.50

Additional Sizes can be furnished.

For Use in the Wall: The registers shown on this page, especially constructed for use in the wall, may be had by specifying Style W.



# Independent "Fabrikated" Special Designs—Registers or Grilles

REG. U. S. PAT. OFFICE

These designs made to order at an advance in price over standard designs. Any Size—Any Finish.

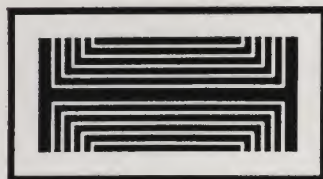
## Construction Data

### Interior Grille Bars:

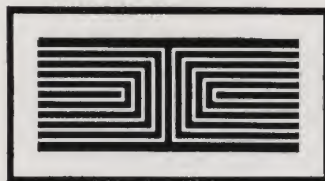
Thickness: .078 inch (No. 14 gauge). This thickness may be doubled by welding two bars or trebled by welding three bars together.

Standard bar depth:  $\frac{1}{2}$  inch;  $\frac{5}{8}$ ,  $\frac{3}{4}$  or 1 inch depths can also be furnished.

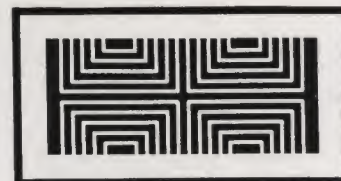
Center to center of bars:  $\frac{7}{16}$ ,  $\frac{7}{8}$  or  $1\frac{1}{4}$  inches.



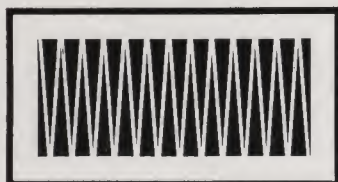
No. 600



No. 602



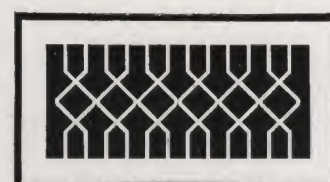
No. 604



No. 700



No. 400



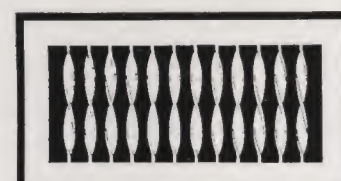
No. 401



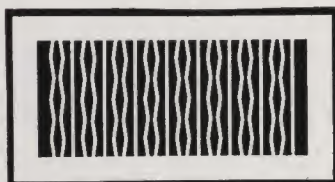
No. 800



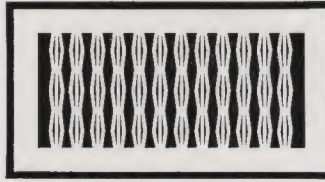
No. 801



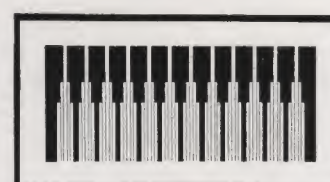
No. 901



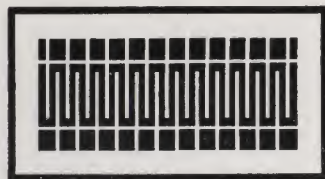
No. 215



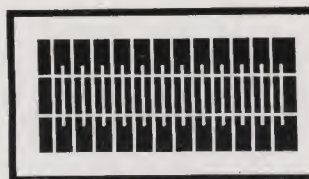
No. 217



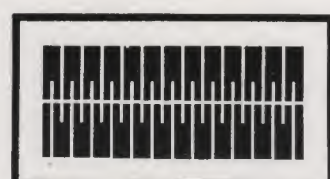
No. 214



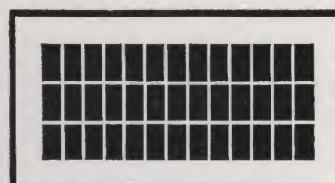
No. 500



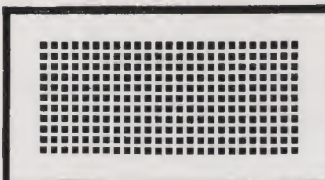
No. 501



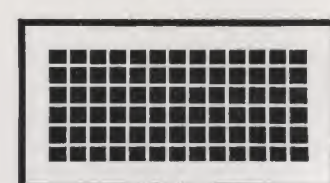
No. 502



No. 301. Openings  $\frac{3}{4}$  x  $1\frac{1}{16}$  in.



No. 337. Openings  $\frac{3}{8}$  x  $\frac{3}{8}$  in.



No. 375. Openings  $\frac{3}{4}$  x  $\frac{3}{4}$  in.

Enquiries for prices should specify design number, sizes, quantities and finish.



# Independent Wrought (Perforated) Steel Grilles

ALSO MADE OF BRASS, BRONZE, ALUMINUM AND OTHER METALS

Grilles perforated from sheet metal to sizes as specified to meet our customers' requirements are shown on this and the two following pages.

The thickness recommended for steel grilles is No. 12 gauge (approximately  $\frac{1}{8}$  inch) but No. 10 gauge (.140") or No. 14 gauge (.078") may also be used. Note the chart below.

They are made to order and are not carried in stock but usually can be supplied with little delay. They can be furnished without finish or any finish desired can be put on them. Prime Coat is the usual finish where the grilles are to be painted to match interior finish.

We welcome inquiries, which should include the following information:

Daylight opening size and overall size.

Quantity and finish.

Material and gauge.




Design preferred.

If screw holes are desired, their location and number and whether to be countersunk.

If invisible doors are required, their location should be stated.

If for use in the floor, it should be specified.

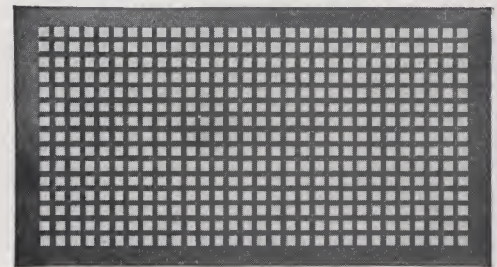
The chart below shows the thickness of various gauges of steel.

No. 10 ga.		.140" thick
No. 12 ga.		.109" thick
No. 14 ga.		.078" thick

No. 50—Possible Daylight Opening Sizes

No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches
2	1 $\frac{1}{4}$	13	9 $\frac{1}{2}$	24	17 $\frac{3}{4}$	35	26	46	34 $\frac{1}{4}$
3	2	14	10 $\frac{1}{4}$	25	18 $\frac{1}{2}$	36	26 $\frac{3}{4}$	47	35
4	2 $\frac{3}{4}$	15	11	26	19 $\frac{1}{4}$	37	27 $\frac{1}{2}$	48	35 $\frac{3}{4}$
5	3 $\frac{1}{2}$	16	11 $\frac{3}{4}$	27	20	38	28 $\frac{1}{2}$	49	36 $\frac{1}{2}$
6	4 $\frac{1}{4}$	17	12 $\frac{1}{2}$	28	20 $\frac{3}{4}$	39	29	50	37 $\frac{1}{4}$
7	5	18	13 $\frac{1}{4}$	29	21 $\frac{1}{2}$	40	29 $\frac{3}{4}$		
8	5 $\frac{1}{4}$	19	14	30	22 $\frac{1}{4}$	41	30 $\frac{1}{2}$		
9	6 $\frac{1}{2}$	20	14 $\frac{3}{4}$	31	23	42	31 $\frac{1}{4}$		
10	7 $\frac{1}{4}$	21	15 $\frac{1}{2}$	32	23 $\frac{3}{4}$	43	32		
11	8	22	16 $\frac{1}{4}$	33	24 $\frac{1}{2}$	44	32 $\frac{3}{4}$		
12	8 $\frac{3}{4}$	23	17	34	25 $\frac{1}{4}$	45	33 $\frac{1}{2}$		

And any multiple beyond this of  $\frac{3}{4}$  inch.

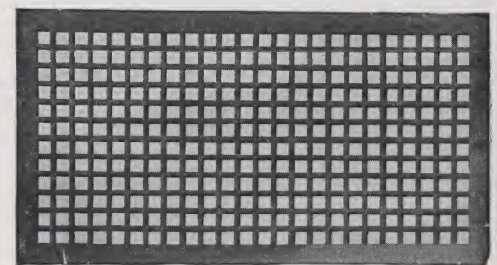


No. 50— $\frac{1}{2}$  inch square openings,  $\frac{1}{4}$  inch cross bars,  $\frac{3}{4}$  inch multiples. 45% Open Area.

No. 75—Possible Daylight Opening Sizes

No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches
2	1 $\frac{3}{4}$	13	12 $\frac{3}{4}$	24	23 $\frac{3}{4}$	35	34 $\frac{3}{4}$	46	45 $\frac{3}{4}$
3	2 $\frac{3}{4}$	14	13 $\frac{3}{4}$	25	24 $\frac{3}{4}$	36	35 $\frac{3}{4}$	47	46 $\frac{3}{4}$
4	3 $\frac{3}{4}$	15	14 $\frac{3}{4}$	26	25 $\frac{3}{4}$	37	36 $\frac{3}{4}$	48	47 $\frac{3}{4}$
5	4 $\frac{3}{4}$	16	15 $\frac{3}{4}$	27	26 $\frac{3}{4}$	38	37 $\frac{3}{4}$	49	48 $\frac{3}{4}$
6	5 $\frac{3}{4}$	17	16 $\frac{3}{4}$	28	27 $\frac{3}{4}$	39	38 $\frac{3}{4}$	50	49 $\frac{3}{4}$
7	6 $\frac{3}{4}$	18	17 $\frac{3}{4}$	29	28 $\frac{3}{4}$	40	39 $\frac{3}{4}$		
8	7 $\frac{3}{4}$	19	18 $\frac{3}{4}$	30	29 $\frac{3}{4}$	41	40 $\frac{3}{4}$		
9	8 $\frac{3}{4}$	20	19 $\frac{3}{4}$	31	30 $\frac{3}{4}$	42	41 $\frac{3}{4}$		
10	9 $\frac{3}{4}$	21	20 $\frac{3}{4}$	32	31 $\frac{3}{4}$	43	42 $\frac{3}{4}$		
11	10 $\frac{3}{4}$	22	21 $\frac{3}{4}$	33	32 $\frac{3}{4}$	44	43 $\frac{3}{4}$		
12	11 $\frac{3}{4}$	23	22 $\frac{3}{4}$	34	33 $\frac{3}{4}$	45	44 $\frac{3}{4}$		

And any multiple beyond this of 1 inch.

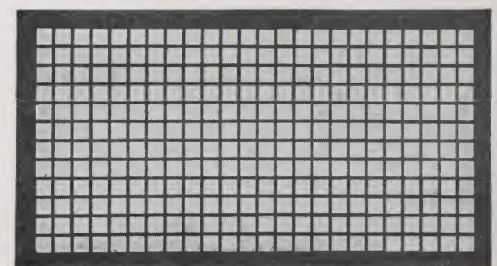


No. 75— $\frac{3}{4}$  inch square openings,  $\frac{1}{4}$  inch cross bars, 1 inch multiples. 57% Open Area.

No. 82—Possible Daylight Opening Sizes

No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches
2	1 .82	13	12 .82	24	23 .82	35	34 .82	46	45 .82
3	2 .82	14	13 .82	25	24 .82	36	35 .82	47	46 .82
4	3 .82	15	14 .82	26	25 .82	37	36 .82	48	47 .82
5	4 .82	16	15 .82	27	26 .82	38	37 .82	49	48 .82
6	5 .82	17	16 .82	28	27 .82	39	38 .82	50	49 .82
7	6 .82	18	17 .82	29	28 .82	40	39 .82		
8	7 .82	19	18 .82	30	29 .82	41	40 .82		
9	8 .82	20	19 .82	31	30 .82	42	41 .82		
10	9 .82	21	20 .82	32	31 .82	43	42 .82		
11	10 .82	22	21 .82	33	32 .82	44	43 .82		
12	11 .82	23	22 .82	34	33 .82	45	44 .82		

And any multiple beyond this of 1 inch.

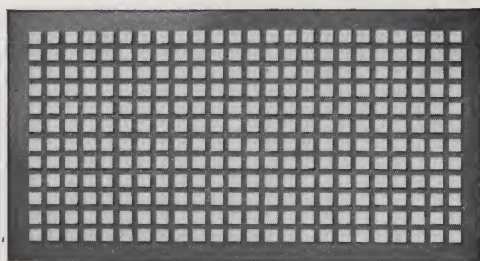


No. 82— .82 x .82 in. square openings, .18 in. cross bars, 1 in. multiples. 67% Open Area.

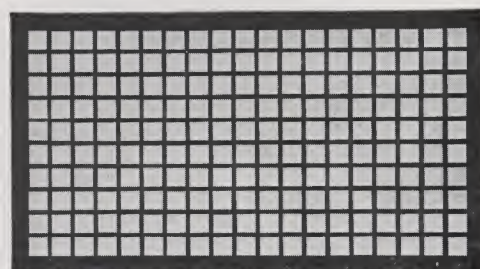


# Independent Wrought (Perforated) Steel Grilles

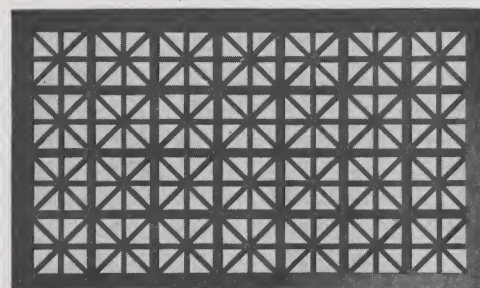
Made to Order to Sizes as Specified by Our Customers



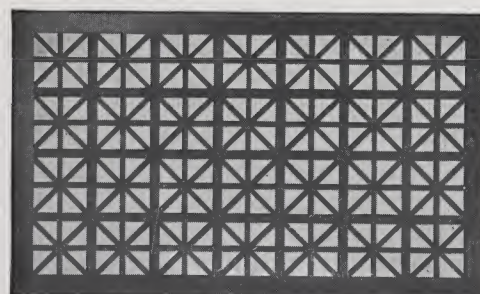
**No. 875—61% Open Area**  
 $\frac{7}{8}$  inch square openings,  $\frac{1}{4}$  inch cross bars,  
 $1\frac{1}{8}$  inch multiples.



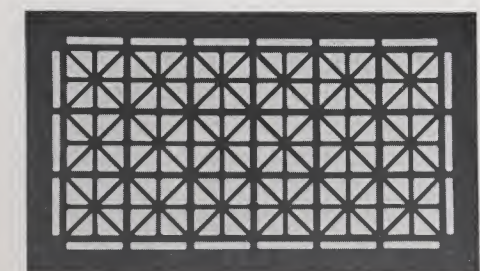
**No. 100—64% Open Area**  
 1 inch square openings,  $\frac{1}{4}$  inch cross bars,  
 $1\frac{1}{4}$  inch multiples.



**No. 3  $\frac{3}{8}$  G—3 x 3 inch openings.**  
 Bars between squares  $\frac{3}{8}$  inch.  
 Each square, 5 square inches open area.



**No. 3  $\frac{1}{2}$  G—3 x 3 inch openings.**  
 Bars between squares  $\frac{1}{2}$  inch.  
 Each square, 5 square inches open area.



**Nos. 3  $\frac{3}{8}$  G and 3  $\frac{1}{2}$  G with side and end slots.**

**No. 875—Possible Daylight Opening Sizes**

No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches
2	2	13	14 $\frac{3}{8}$	24	26 $\frac{3}{4}$	35	39 $\frac{1}{2}$	46	51 $\frac{1}{2}$
3	3 $\frac{1}{8}$	14	15 $\frac{1}{2}$	25	27 $\frac{7}{8}$	36	40 $\frac{1}{4}$	47	52 $\frac{5}{8}$
4	4 $\frac{1}{4}$	15	16 $\frac{3}{4}$	26	29	37	41 $\frac{5}{8}$	48	53 $\frac{3}{4}$
5	5 $\frac{3}{8}$	16	17 $\frac{3}{4}$	27	30 $\frac{1}{2}$	38	42 $\frac{1}{2}$	49	54 $\frac{1}{2}$
6	6 $\frac{1}{2}$	17	18 $\frac{3}{8}$	28	31 $\frac{1}{4}$	39	43 $\frac{5}{8}$	50	56
7	7 $\frac{5}{8}$	18	20	29	32 $\frac{3}{4}$	40	44 $\frac{3}{4}$		
8	8 $\frac{3}{4}$	19	21 $\frac{1}{2}$	30	33 $\frac{1}{2}$	41	45 $\frac{7}{8}$		
9	9 $\frac{7}{8}$	20	22 $\frac{1}{4}$	31	34 $\frac{3}{4}$	42	47		
10	11	21	23 $\frac{3}{4}$	32	35 $\frac{3}{4}$	43	48 $\frac{1}{2}$		
11	12 $\frac{1}{8}$	22	24 $\frac{1}{2}$	33	36 $\frac{3}{8}$	44	49 $\frac{1}{4}$		
12	13 $\frac{1}{4}$	23	25 $\frac{5}{8}$	34	38	45	50 $\frac{3}{8}$		

And any multiple beyond this of  $1\frac{1}{8}$  inches.

**No. 100—Possible Daylight Opening Sizes**

No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches
2	2 $\frac{1}{4}$	13	16	24	29 $\frac{3}{4}$	35	43 $\frac{1}{2}$	46	57 $\frac{1}{4}$
3	3 $\frac{1}{2}$	14	17 $\frac{1}{4}$	25	31	36	44 $\frac{3}{4}$	47	58 $\frac{1}{2}$
4	4 $\frac{3}{4}$	15	18 $\frac{1}{2}$	26	32 $\frac{1}{2}$	37	46	48	59 $\frac{3}{4}$
5	6	16	19 $\frac{3}{4}$	27	33 $\frac{1}{2}$	38	47 $\frac{1}{4}$	49	61
6	7 $\frac{1}{4}$	17	21	28	34 $\frac{3}{4}$	39	48 $\frac{1}{2}$	50	62 $\frac{1}{4}$
7	8 $\frac{1}{2}$	18	22 $\frac{1}{4}$	29	36	40	49 $\frac{3}{4}$		
8	9 $\frac{3}{4}$	19	23 $\frac{1}{2}$	30	37 $\frac{1}{4}$	41	51		
9	11	20	24 $\frac{3}{4}$	31	38 $\frac{3}{4}$	42	52 $\frac{1}{4}$		
10	12 $\frac{1}{2}$	21	26	32	39 $\frac{3}{4}$	43	53 $\frac{1}{2}$		
11	13 $\frac{1}{2}$	22	27 $\frac{1}{4}$	33	41	44	54 $\frac{3}{4}$		
12	14 $\frac{3}{4}$	23	28 $\frac{1}{2}$	34	42 $\frac{1}{4}$	45	56		

And any multiple beyond this of  $1\frac{1}{4}$  inches.

**No. 3  $\frac{3}{8}$  G—Possible Daylight Opening Sizes**

NOTE: These sizes may be changed by using side or end slots as shown below.

No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches
2	6 $\frac{3}{8}$	9	30	16	53 $\frac{3}{8}$	23	77 $\frac{1}{4}$	29	97 $\frac{1}{2}$
3	9 $\frac{3}{4}$	10	33 $\frac{3}{4}$	17	57	24	80 $\frac{3}{4}$	30	100 $\frac{3}{4}$
4	13 $\frac{1}{8}$	11	36 $\frac{3}{4}$	18	60 $\frac{3}{8}$	25	84		
5	16 $\frac{1}{2}$	12	40 $\frac{1}{4}$	19	63 $\frac{3}{4}$	26	87 $\frac{3}{4}$		
6	19 $\frac{7}{8}$	13	43 $\frac{1}{2}$	20	67 $\frac{1}{2}$	27	90 $\frac{3}{4}$		
7	23 $\frac{1}{4}$	14	46 $\frac{3}{8}$	21	70 $\frac{1}{2}$	28	94 $\frac{3}{8}$		
8	26 $\frac{3}{8}$	15	50 $\frac{1}{4}$	22	73 $\frac{1}{2}$				

And any multiple beyond this of  $3\frac{3}{8}$  inches.

**No. 3  $\frac{1}{2}$  G—Possible Daylight Opening Sizes**

NOTE: These sizes may be changed by using side or end slots as shown below.

No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches
2	6 $\frac{1}{2}$	9	31	16	55 $\frac{1}{2}$	23	80	29	101
3	10	10	34 $\frac{1}{2}$	17	59	24	83 $\frac{1}{2}$	30	104 $\frac{1}{2}$
4	13 $\frac{1}{2}$	11	38	18	62 $\frac{1}{2}$	25	87		
5	17	12	41 $\frac{1}{2}$	19	66	26	90 $\frac{1}{2}$		
6	20 $\frac{1}{2}$	13	45	20	69 $\frac{1}{2}$	27	94		
7	24	14	48 $\frac{1}{2}$	21	73	28	97 $\frac{1}{2}$		
8	27 $\frac{1}{2}$	15	52	22	76 $\frac{1}{2}$				

And any multiple beyond this of  $3\frac{1}{2}$  inches.

The daylight opening sizes of the Nos. 3  $\frac{3}{8}$  G and 3  $\frac{1}{2}$  G designs may be varied from the sizes specified above by punching slots  $\frac{3}{8}$  inch wide by 3 inches long in the rims as shown in the illustration.

These may be placed in either two or four sides.

Each set of slots add to the daylight opening size either  $1\frac{1}{4}$ ,  $1\frac{1}{2}$  or  $1\frac{3}{4}$  inches as may be desired.

The open area of each slot is 1.1 square inches.

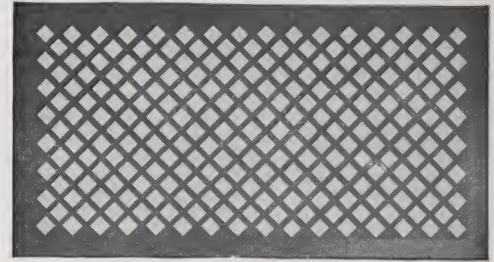


# Independent Wrought (Perforated) Steel Grilles

Made to Order to Sizes as Specified by Our Customers

No. 75 D — Possible Daylight Opening Sizes

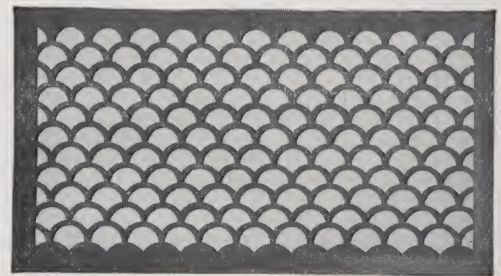
No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches	No. of Holes	Daylight Opening, Inches
2	1 $\frac{3}{4}$	13	9 $\frac{1}{4}$	24	17 $\frac{9}{16}$	35	25 $\frac{1}{2}$	46	33 $\frac{3}{8}$
3	2 $\frac{1}{8}$	14	10 $\frac{3}{8}$	25	18 $\frac{9}{16}$	36	26 $\frac{1}{8}$	47	34 $\frac{3}{16}$
4	3 $\frac{1}{8}$	15	11 $\frac{1}{4}$	26	19	37	26 $\frac{3}{8}$	48	34 $\frac{1}{2}$
5	3 $\frac{3}{8}$	16	11 $\frac{3}{8}$	27	19 $\frac{1}{2}$	38	27 $\frac{5}{8}$	49	35 $\frac{1}{4}$
6	4 $\frac{5}{8}$	17	12 $\frac{1}{2}$	28	20 $\frac{7}{16}$	39	28 $\frac{1}{2}$	50	36 $\frac{1}{4}$
7	5 $\frac{1}{4}$	18	13 $\frac{1}{4}$	29	21 $\frac{5}{8}$	40	29 $\frac{1}{8}$	And any multiple beyond this of $\frac{1}{8}$ inch.	
8	6 $\frac{1}{8}$	19	13 $\frac{3}{8}$	30	21 $\frac{1}{2}$	41	29 $\frac{3}{8}$		
9	6 $\frac{3}{8}$	20	14 $\frac{1}{8}$	31	22 $\frac{1}{8}$	42	30 $\frac{1}{2}$		
10	7 $\frac{1}{2}$	21	15 $\frac{1}{8}$	32	23 $\frac{1}{8}$	43	31 $\frac{1}{4}$		
11	8 $\frac{1}{4}$	22	16 $\frac{1}{8}$	33	24 $\frac{1}{4}$	44	31 $\frac{3}{8}$		
12	8 $\frac{3}{8}$	23	16 $\frac{3}{4}$	34	24 $\frac{3}{4}$	45	32 $\frac{1}{2}$		



No. 75 D — 57% Open Area (Variable)  
 $\frac{3}{4}$  inch diagonal square openings,  $\frac{1}{4}$  inch cross bars,  $\frac{1}{8}$  inch multiples.  
 Each opening: .5625 sq. in.

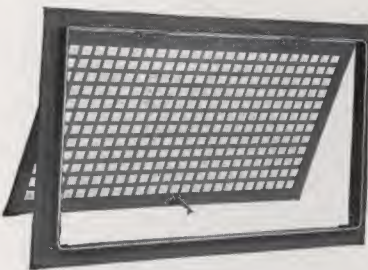
No. 225 S — Possible Daylight Opening Sizes

Number of Holes	Width Inches	Height Inches	Number of Holes	Width Inches	Height Inches	Number of Holes	Width Inches	Height Inches
2	2 $\frac{3}{4}$	2 $\frac{9}{16}$	16	16 $\frac{3}{4}$	18 $\frac{5}{16}$	30	30 $\frac{3}{4}$	34 $\frac{1}{16}$
3	3 $\frac{3}{4}$	3 $\frac{1}{16}$	17	17 $\frac{3}{4}$	19 $\frac{1}{16}$	31	31 $\frac{3}{4}$	35 $\frac{3}{16}$
4	4 $\frac{3}{4}$	4 $\frac{1}{16}$	18	18 $\frac{3}{4}$	20 $\frac{1}{16}$	32	32 $\frac{3}{4}$	36 $\frac{5}{16}$
5	5 $\frac{3}{4}$	5 $\frac{1}{16}$	19	19 $\frac{3}{4}$	21 $\frac{1}{16}$	33	33 $\frac{3}{4}$	37 $\frac{7}{16}$
6	6 $\frac{3}{4}$	7 $\frac{1}{16}$	20	20 $\frac{3}{4}$	22 $\frac{1}{16}$	34	34 $\frac{3}{4}$	38 $\frac{9}{16}$
7	7 $\frac{3}{4}$	8 $\frac{1}{16}$	21	21 $\frac{3}{4}$	23 $\frac{1}{16}$	35	35 $\frac{3}{4}$	39 $\frac{11}{16}$
8	8 $\frac{3}{4}$	9 $\frac{1}{16}$	22	22 $\frac{3}{4}$	25 $\frac{1}{16}$	36	36 $\frac{3}{4}$	40 $\frac{13}{16}$
9	9 $\frac{3}{4}$	10 $\frac{1}{16}$	23	23 $\frac{3}{4}$	26 $\frac{1}{16}$	37	37 $\frac{3}{4}$	41 $\frac{15}{16}$
10	10 $\frac{3}{4}$	11 $\frac{1}{16}$	24	24 $\frac{3}{4}$	27 $\frac{1}{16}$	38	38 $\frac{3}{4}$	43 $\frac{1}{16}$
11	11 $\frac{3}{4}$	12 $\frac{1}{16}$	25	25 $\frac{3}{4}$	28 $\frac{1}{16}$	39	39 $\frac{3}{4}$	44 $\frac{3}{16}$
12	12 $\frac{3}{4}$	13 $\frac{1}{16}$	26	26 $\frac{3}{4}$	29 $\frac{1}{16}$	40	40 $\frac{3}{4}$	45 $\frac{5}{16}$
13	13 $\frac{3}{4}$	14 $\frac{1}{16}$	27	27 $\frac{3}{4}$	30 $\frac{1}{16}$	And any multiple beyond this: Width 1 inch, Height 1 $\frac{1}{8}$ inches.		
14	14 $\frac{3}{4}$	16 $\frac{1}{16}$	28	28 $\frac{3}{4}$	31 $\frac{1}{16}$			
15	15 $\frac{3}{4}$	17 $\frac{1}{16}$	29	29 $\frac{3}{4}$	32 $\frac{1}{16}$			



No. 225 S — 67% Open Area  
 Openings in width, 2 inches center to center.  
 Openings in height, 2 $\frac{1}{4}$  inches center to center.  
 Width of interior bars,  $\frac{1}{4}$  inch.  
 Orders should specify which dimension is height.

## Angle Frames



Any of our grilles can be furnished with steel angle frames to which they may be hinged or screwed.

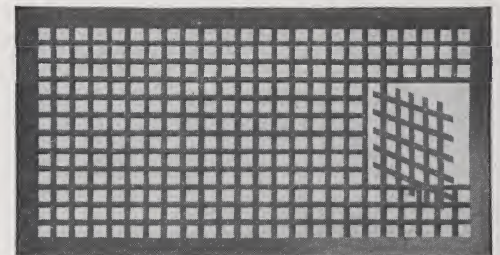
Standard sizes of angle frame material:

$\frac{7}{8}$  x  $\frac{7}{8}$  x  $\frac{1}{8}$  inch  
 $1\frac{1}{4}$  x  $1\frac{1}{4}$  x  $\frac{1}{8}$  inch

Wall opening sizes should be specified.

## Invisible Doors

The exact location should be specified.



## Band Steel Frames



For attaching grilles to ducts, Band Steel Frames can be furnished; with either two or more screw lugs, the lugs extending either inside or outside the frame. The frames are attached to the ducts by metal strips, or, screw holes through the frame sides for attaching by sheet metal screws may be provided, if desired.

These frames are usually attached to the inside of the ducts but may be made to fit outside if preferred.

Any of the grilles of the designs shown on this and preceding pages can be made into complete registers with valves or louvers to open and close.

## For Operation by cord or chain

If to be used in the wall or ceiling out of reach from the floor,

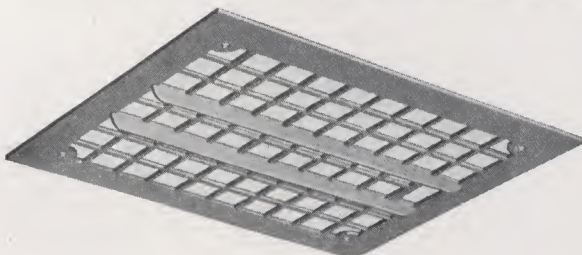
registers may be equipped with pulleys so that the valves can be operated by chain or cord.

## Pole Operating

With ring protruding from the operating lever to facilitate opening and closing the valves with a pole.

## Brace Bars

Bottom view, showing brace bars which may be attached to grilles where extra strength or rigidity is required





# Independent Air Conditioning Registers

Nos. 158-258; 182-282 Wrought Steel and "Fabrikated" Nos. 201-300

All Registers are Complete—With Single Valves and Setting Frames for Sidewall & Baseboard Installation.

Baseboard Registers Complete One and Two Piece Styles with  $\frac{1}{8}$ " Side and Top Projecting Flanges.

To Fit Stackhead Size: (Horizontal Dimension First) Inches	A Complete with WO Wall Frame			B Complete with WX or WT Wall Frame or BX Base Frame			C Complete 1 Piece BO Baseboard with $\frac{1}{8}$ " Projecting Flanges			D Complete 2 Piece BT Baseboard with $\frac{1}{8}$ " Projecting Flanges		
	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze
8x6	\$2.30	\$2.45	\$3.20	\$2.85	\$3.00	\$3.75	\$2.65	\$2.80	\$3.55	\$2.85	\$3.00	\$3.75
10x4	2.20	2.35	3.05	2.70	2.85	3.55	2.50	2.65	3.35	2.70	2.85	3.55
10x5	2.30	2.45	3.20	2.85	3.00	3.75	2.65	2.80	3.55	2.85	3.00	3.75
10x6	2.45	2.65	3.40	3.00	3.20	3.95	2.75	2.95	3.70	3.00	3.20	3.95
10x8	2.65	2.80	3.65	3.25	3.40	4.25	3.00	3.15	4.00	3.25	3.40	4.25
12x4	2.30	2.45	3.20	2.85	3.00	3.75	2.65	2.80	3.55	2.85	3.00	3.75
12x5	2.50	2.70	3.50	3.05	3.25	4.05	2.85	3.05	3.85	3.05	3.25	4.05
12x6	2.65	2.80	3.65	3.25	3.40	4.25	3.00	3.15	4.00	3.25	3.40	4.25
12x8	2.90	3.10	4.00	3.55	3.75	4.65	3.30	3.50	4.40	3.55	3.75	4.65
12x9	3.05	3.25	4.25	3.75	3.95	4.95	3.50	3.70	4.70	3.75	3.95	4.95
12x10	3.55	3.80	4.90	4.35	4.60	5.70	4.00	4.25	5.35	4.35	4.60	5.70
14x4	2.45	2.65	3.40	3.00	3.20	3.95	2.75	2.95	3.70	3.00	3.20	3.95
14x5	2.65	2.80	3.65	3.25	3.40	4.25	3.00	3.15	4.00	3.25	3.40	4.25
14x6	2.90	3.10	4.00	3.55	3.75	4.65	3.30	3.50	4.40	3.55	3.75	4.65
14x8	3.05	3.25	4.25	3.75	3.95	4.95	3.50	3.70	4.70	3.75	3.95	4.95
14x10	3.95	4.25	5.50	4.85	5.15	6.40	4.50	4.80	6.05	4.85	5.15	6.40
16x4	2.50	2.70	3.50	3.05	3.25	4.05	2.85	3.05	3.85	3.05	3.25	4.05
16x5	2.80	3.00	3.85	3.40	3.60	4.45	3.15	3.35	4.20	3.40	3.60	4.45
16x6	3.05	3.25	4.25	3.75	3.95	4.95	3.50	3.70	4.70	3.75	3.95	4.95
16x8	3.50	3.75	4.90	4.30	4.55	5.70	4.00	4.25	5.35	4.30	4.55	5.70
16x10	4.20	4.45	5.80	5.15	5.40	6.75	4.75	5.05	6.35	5.15	5.40	6.75
18x4	2.65	2.80	3.65	3.25	3.40	4.25	3.00	3.15	4.00	3.25	3.40	4.25
18x5	2.90	3.10	4.00	3.55	3.75	4.65	3.30	3.50	4.40	3.55	3.75	4.65
18x6	3.35	3.55	4.60	4.10	4.30	5.35	3.80	4.00	5.05	4.10	4.30	5.35
18x8	3.95	4.25	5.50	4.85	5.15	6.40	4.50	4.75	6.05	4.85	5.15	6.40
18x10	4.50	4.80	6.25	5.55	5.85	7.30	5.15	5.45	6.85	5.55	5.85	7.30
20x4	2.90	3.10	4.00	3.55	3.75	4.65	3.30	3.50	4.40	3.55	3.75	4.65
20x5	3.05	3.25	4.25	3.75	3.95	4.95	3.50	3.70	4.70	3.75	3.95	4.95
20x6	3.75	4.00	5.20	4.60	4.85	6.05	4.25	4.50	5.70	4.60	4.85	6.05
20x8	4.40	4.70	6.10	5.40	5.70	7.10	5.00	5.30	6.70	5.40	5.70	7.10
20x10	4.85	5.15	6.70	5.95	6.25	7.80	5.50	5.85	7.35	5.95	6.25	7.80
22x4	3.10	3.30	4.25	3.80	4.00	4.95	3.50	3.70	4.70	3.80	4.00	4.95
22x5	3.30	3.55	4.60	4.05	4.30	5.35	3.75	4.00	5.05	4.05	4.30	5.35
22x6	3.95	4.25	5.50	4.85	5.15	6.40	4.50	4.80	6.05	4.85	5.15	6.40
22x8	4.60	4.95	6.40	5.65	6.00	7.45	5.25	5.55	7.15	5.65	6.00	7.45
22x10	5.05	5.40	7.00	6.20	6.55	8.15	5.75	6.10	7.70	6.20	6.65	8.15
24x4	3.35	3.55	4.60	4.10	4.30	5.35	3.80	4.00	5.05	4.10	4.30	5.35
24x5	3.55	3.80	4.90	4.35	4.60	5.70	4.00	4.25	5.35	4.35	4.60	5.70
24x6	4.20	4.45	5.80	5.15	5.40	6.75	4.80	5.05	6.40	5.15	5.40	6.75
24x8	4.85	5.15	6.70	5.95	6.25	7.80	5.50	5.80	7.35	5.95	6.25	7.80
24x10	5.30	5.65	7.30	6.50	6.85	8.50	6.00	6.35	8.05	6.50	6.85	8.50
26x4	3.50	3.75	4.90	4.30	4.55	5.70	4.00	4.25	5.35	4.30	4.55	5.70
26x5	3.75	4.00	5.20	4.60	4.85	6.05	4.25	4.50	5.70	4.60	4.85	6.05
26x6	4.40	4.70	6.10	5.40	5.70	7.10	5.00	5.30	6.70	5.40	5.70	7.10
26x8	5.30	5.65	7.30	6.50	6.85	8.50	6.00	6.35	8.05	6.50	6.85	8.50
26x10	5.70	6.15	7.95	7.00	7.40	9.25	6.50	6.90	8.70	7.00	7.40	9.25
28x4	3.75	4.00	5.20	4.60	4.85	6.05	4.25	4.50	5.70	4.60	4.85	6.05
28x5	4.20	4.45	5.80	5.15	5.40	6.75	4.75	5.05	6.35	5.15	5.40	6.75
28x6	4.85	5.15	6.70	5.95	6.25	7.80	5.50	5.85	7.35	5.95	6.25	7.80
28x8	5.30	5.60	7.30	6.50	6.85	8.50	6.00	6.35	8.05	6.50	6.85	8.50
28x10	6.15	6.60	8.55	7.55	8.00	9.95	7.00	7.40	9.40	7.55	8.00	9.95
30x4	4.10	4.35	5.65	5.05	5.30	6.60	4.65	4.90	6.20	5.05	5.30	6.60
30x5	4.40	4.70	6.10	5.40	5.70	7.10	5.00	5.30	6.70	5.40	5.70	7.10
30x6	5.10	5.45	7.05	6.25	6.60	8.20	5.80	6.10	7.75	6.25	6.60	8.20
30x8	5.75	6.15	7.95	7.05	7.45	9.25	6.50	6.90	8.70	7.05	7.45	9.25
30x10	6.40	6.80	8.85	7.85	8.25	10.30	7.30	7.70	9.75	7.85	8.25	10.30
36x4	5.50	5.90	7.65	6.75	7.15	8.90	6.25	6.65	8.40	6.75	7.15	8.90
36x5	5.70	6.15	7.95	7.00	7.40	9.25	6.50	6.90	8.70	7.00	7.40	9.25
36x6	5.95	6.35	8.25	7.30	7.70	9.60	6.75	7.15	9.05	7.30	7.70	9.60
36x8	6.40	6.80	8.85	7.85	8.25	10.30	7.25	7.70	9.70	7.85	8.25	10.30
36x10	7.25	7.80	10.05	8.90	9.40	11.70	8.25	8.75	11.05	8.90	9.40	11.70

Additional sizes can be furnished.



# Independent "Fabrikated" Air Conditioning Registers

REG. U. S. PAT. OFFICE

Nos. 211-311-321-Grille Bars Permanently Set for Straight Outward Flow

All Registers are Complete—With Single Valves and Setting Frames for Sidewall & Baseboard Installation.  
Baseboard Registers Complete One and Two Piece Styles with  $\frac{7}{8}$ " Side and Top Projecting Flanges.

To Fit Stackhead Size: (Horizontal Dimension First) Inches	E Complete with WO Wall Frame			F Complete with WX or WT Wall Frame or BX Base Frame			G Complete 1 Piece BO Baseboard with $\frac{7}{8}$ " Projecting Flanges			H Complete 2 Piece BT Baseboard with $\frac{7}{8}$ " Projecting Flanges		
	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze
8x6	\$2.55	\$2.70	\$3.45	\$3.10	\$3.25	\$4.00	\$2.90	\$3.05	\$3.80	\$3.10	\$3.25	\$4.00
10x4	2.45	2.60	3.30	2.95	3.10	3.80	2.75	2.90	3.60	2.95	3.10	3.80
10x5	2.55	2.70	3.45	3.10	3.25	4.00	2.90	3.05	3.80	3.10	3.25	4.00
10x6	2.75	2.95	3.70	3.30	3.50	4.25	3.05	3.25	4.00	3.30	3.50	4.25
10x8	2.95	3.10	3.95	3.55	3.70	4.55	3.30	3.45	4.30	3.55	3.70	4.55
12x4	2.55	2.70	3.45	3.10	3.25	4.00	2.90	3.05	3.80	3.10	3.25	4.00
12x5	2.80	3.00	3.80	3.35	3.55	4.35	3.15	3.35	4.15	3.35	3.55	4.35
12x6	2.95	3.10	3.95	3.55	3.70	4.55	3.30	3.45	4.30	3.55	3.70	4.55
12x8	3.25	3.45	4.35	3.90	4.10	5.00	3.65	3.85	4.75	3.90	4.10	5.00
12x9	3.40	3.60	4.60	4.10	4.30	5.30	3.85	4.05	5.05	4.10	4.30	5.30
12x10	3.95	4.20	5.30	4.75	5.00	6.10	4.40	4.65	5.75	4.75	5.00	6.10
14x4	2.75	2.95	3.70	3.30	3.50	4.25	3.05	3.25	4.00	3.30	3.50	4.25
14x5	2.95	3.10	3.95	3.55	3.70	4.55	3.30	3.45	4.30	3.55	3.70	4.55
14x6	3.25	3.45	4.35	3.90	4.10	5.00	3.65	3.85	4.75	3.90	4.10	5.00
14x8	3.40	3.60	4.60	4.10	4.30	5.30	3.85	4.05	5.05	4.10	4.30	5.30
14x10	4.40	4.70	5.95	5.30	5.60	6.85	4.95	5.25	6.50	5.30	5.60	6.85
16x4	2.80	3.00	3.80	3.35	3.55	4.35	3.15	3.35	4.15	3.35	3.55	4.35
16x5	3.10	3.30	4.15	3.70	3.90	4.75	3.45	3.65	4.50	3.70	3.90	4.75
16x6	3.40	3.60	4.60	4.10	4.30	5.30	3.85	4.05	5.05	4.10	4.30	5.30
16x8	3.90	4.15	5.30	4.70	4.95	6.10	4.40	4.65	5.75	4.70	4.95	6.10
16x10	4.65	4.95	6.25	5.60	5.90	7.20	5.25	5.50	6.85	5.60	5.90	7.20
18x4	2.95	3.10	3.95	3.55	3.70	4.55	3.30	3.45	4.30	3.55	3.70	4.55
18x5	3.25	3.45	4.35	3.90	4.10	5.00	3.65	3.85	4.75	3.90	4.10	5.00
18x6	3.75	3.95	5.00	4.50	4.70	5.75	4.20	4.40	5.45	4.50	4.70	5.75
18x8	4.40	4.70	5.95	5.30	5.60	6.85	4.95	5.20	6.50	5.30	5.60	6.85
18x10	5.00	5.35	6.75	6.05	6.35	7.80	5.65	5.95	7.40	6.05	6.35	7.80
20x4	3.25	3.45	4.35	3.90	4.10	5.00	3.65	3.85	4.75	3.90	4.10	5.00
20x5	3.40	3.60	4.60	4.10	4.30	5.30	3.85	4.05	5.05	4.10	4.30	5.30
20x6	4.20	4.45	5.65	5.05	5.30	6.50	4.70	4.95	6.15	5.05	5.30	6.50
20x8	4.90	5.20	6.60	5.90	6.20	7.60	5.50	5.80	7.20	5.90	6.20	7.60
20x10	5.40	5.70	7.25	6.50	6.80	8.35	6.05	6.40	7.90	6.50	6.80	8.35
22x4	3.45	3.65	4.60	4.15	4.35	5.30	3.85	4.05	5.05	4.15	4.35	5.30
22x5	3.70	3.90	4.95	4.45	4.65	5.70	4.15	4.35	5.40	4.45	4.65	5.70
22x6	4.40	4.70	5.95	5.30	5.60	6.85	4.95	5.25	6.50	5.30	5.60	6.85
22x8	5.15	5.45	6.95	6.20	6.50	8.00	5.80	6.10	7.55	6.20	6.50	8.00
22x10	5.65	6.00	7.60	6.80	7.15	8.75	6.35	6.65	8.30	6.80	7.15	8.75
24x4	3.75	3.95	5.00	4.50	4.70	5.75	4.20	4.40	5.45	4.50	4.70	5.75
24x5	3.95	4.20	5.30	4.75	5.00	6.10	4.40	4.65	5.75	4.75	5.00	6.10
24x6	4.70	4.95	6.30	5.65	5.90	7.25	5.30	5.55	6.90	5.65	5.90	7.25
24x8	5.40	5.70	7.25	6.50	6.80	8.35	6.05	6.35	7.90	6.50	6.80	8.35
24x10	5.90	6.25	7.90	7.10	7.45	9.10	6.60	6.95	8.65	7.10	7.45	9.10
26x4	3.90	4.15	5.30	4.70	4.95	6.10	4.40	4.65	5.75	4.70	4.95	6.10
26x5	4.15	4.40	5.60	5.00	5.25	6.45	4.70	4.95	6.10	5.00	5.25	6.45
26x6	4.90	5.20	6.60	5.90	6.20	7.60	5.50	5.80	7.20	5.90	6.20	7.60
26x8	5.90	6.25	7.90	7.10	7.45	9.10	6.60	6.95	8.65	7.10	7.45	9.10
26x10	6.35	6.75	8.60	7.65	8.05	9.90	7.15	7.55	9.35	7.65	8.05	9.90
28x4	4.15	4.40	5.60	5.00	5.25	6.45	4.70	4.95	6.10	5.00	5.25	6.45
28x5	4.65	4.95	6.25	5.60	5.90	7.20	5.25	5.50	6.85	5.60	5.90	7.20
28x6	5.40	5.70	7.25	6.50	6.80	8.35	6.05	6.40	7.90	6.50	6.80	8.35
28x8	5.90	6.25	7.90	7.10	7.45	9.10	6.60	6.95	8.65	7.10	7.45	9.10
28x10	6.85	7.30	9.25	8.25	8.70	10.65	7.70	8.10	10.10	8.25	8.70	10.65
30x4	4.55	4.80	6.10	5.50	5.75	7.05	5.10	5.35	6.65	5.50	5.75	7.05
30x5	4.90	5.20	6.60	5.90	6.20	7.60	5.50	5.80	7.20	5.90	6.20	7.60
30x6	5.70	6.05	7.65	6.85	7.20	8.80	6.40	6.75	8.35	6.85	7.20	8.80
30x8	6.40	6.80	8.60	7.70	8.10	9.90	7.15	7.55	9.35	7.70	8.10	9.90
30x10	7.15	7.55	9.60	8.60	9.00	11.05	8.05	8.45	10.50	8.60	9.00	11.05
36x4	6.15	6.50	8.25	7.40	7.75	9.50	6.90	7.25	9.00	7.40	7.75	9.50
36x5	6.35	6.75	8.60	7.65	8.05	9.90	7.15	7.55	9.35	7.65	8.05	9.90
36x6	6.60	7.00	8.90	7.95	8.35	10.25	7.45	7.85	9.70	7.95	8.35	10.25
36x8	7.10	7.55	9.55	8.55	9.00	11.00	8.00	8.40	10.45	8.55	9.00	11.00
36x10	8.10	8.60	10.90	9.75	10.25	12.55	9.10	9.55	11.90	9.75	10.25	12.55

Additional sizes can be furnished.



# Independent "Fabrikated" Air Conditioning Registers

REG. U. S. PAT. OFFICE

## No. 311-A and No. 321-A—Adjustable Directed Air Flow Registers

The No. 321-A grille bars may be adjusted to direct the air flow to any desired degree to 45°, either right or left; the No. 311-A adjusts to direct the flow to 45° either up or down.

All Registers are Complete—With Single Valves and Setting Frames for Sidewall & Baseboard Installation.  
Baseboard Registers Complete One and Two Piece Styles with 1/8" Side and Top Projecting Flanges.

To Fit Stackhead Size: (Horizontal Dimension First) Inches	J Complete with WO Wall Frame			K Complete with WX or WT Wall Frame or BX Base Frame			L Complete 1 Piece BO Baseboard with 1/8" Projecting Flanges			M Complete 2 Piece BT Baseboard with 1/8" Projecting Flanges		
	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze
8x6	\$3.10	\$3.25	\$4.00	\$3.60	\$3.80	\$4.50	\$3.40	\$3.60	\$4.30	\$3.60	\$3.80	\$4.50
10x4	2.95	3.10	3.80	3.45	3.60	4.30	3.25	3.40	4.10	3.45	3.60	4.30
10x5	3.10	3.25	4.00	3.60	3.80	4.50	3.40	3.55	4.30	3.60	3.80	4.50
10x6	3.25	3.40	4.20	3.80	3.95	4.75	3.60	3.75	4.50	3.80	3.95	4.75
10x8	3.55	3.70	4.55	4.15	4.30	5.15	3.90	4.10	4.90	4.15	4.30	5.15
12x4	3.10	3.25	4.00	3.60	3.80	4.50	3.40	3.55	4.30	3.60	3.80	4.50
12x5	3.40	3.55	4.35	3.95	4.15	4.95	3.75	3.90	4.70	3.95	4.15	4.95
12x6	3.55	3.70	4.55	4.15	4.30	5.15	3.90	4.10	4.90	4.15	4.30	5.15
12x8	3.85	4.05	4.95	4.50	4.70	5.60	4.25	4.40	5.35	4.50	4.70	5.60
12x9	4.15	4.35	5.30	4.85	5.05	6.00	4.55	4.75	5.75	4.85	5.05	6.00
12x10	4.70	4.95	6.10	5.50	5.75	6.90	5.20	5.45	6.55	5.50	5.75	6.90
14x4	3.25	3.40	4.20	3.80	3.95	4.75	3.60	3.75	4.50	3.80	3.95	4.75
14x5	3.55	3.70	4.55	4.15	4.30	5.15	3.90	4.10	4.90	4.15	4.30	5.15
14x6	3.85	4.05	4.95	4.50	4.70	5.60	4.25	4.40	5.35	4.50	4.70	5.60
14x8	4.15	4.35	5.30	4.85	5.05	6.00	4.55	4.75	5.75	4.85	5.05	6.00
14x10	5.30	5.60	6.85	6.20	6.50	7.75	5.85	6.10	7.40	6.20	6.50	7.75
16x4	3.40	3.55	4.35	3.95	4.15	4.95	3.75	3.90	4.70	3.95	4.15	4.95
16x5	3.70	3.90	4.75	4.30	4.50	5.40	4.05	4.25	5.15	4.30	4.50	5.40
16x6	4.15	4.35	5.30	4.85	5.05	6.00	4.55	4.75	5.75	4.85	5.05	6.00
16x8	4.70	4.95	6.10	5.50	5.75	6.90	5.20	5.45	6.55	5.50	5.75	6.90
16x10	5.60	5.90	7.20	6.55	6.85	8.15	6.20	6.45	7.80	6.55	6.85	8.15
18x4	3.55	3.70	4.55	4.15	4.30	5.15	3.90	4.10	4.90	4.15	4.30	5.15
18x5	3.85	4.05	4.95	4.50	4.70	5.60	4.25	4.40	5.35	4.50	4.70	5.60
18x6	4.45	4.65	5.70	5.20	5.40	6.45	4.90	5.10	6.15	5.20	5.40	6.45
18x8	5.30	5.60	6.85	6.20	6.50	7.75	5.85	6.10	7.40	6.20	6.50	7.75
18x10	6.05	6.35	7.80	7.05	7.40	8.80	6.65	6.95	8.40	7.05	7.40	8.80
20x4	3.85	4.05	4.95	4.50	4.70	5.60	4.25	4.40	5.35	4.50	4.70	5.60
20x5	4.15	4.35	5.30	4.85	5.05	6.00	4.55	4.75	5.75	4.85	5.05	6.00
20x6	5.00	5.25	6.45	5.85	6.10	7.30	5.55	5.80	6.95	5.85	6.10	7.30
20x8	5.90	6.20	7.60	6.90	7.20	8.60	6.50	6.80	8.20	6.90	7.20	8.60
20x10	6.50	6.80	8.35	7.60	7.90	9.45	7.15	7.50	9.00	7.60	7.90	9.45
22x4	4.15	4.35	5.30	4.85	5.05	6.00	4.55	4.75	5.75	4.85	5.05	6.00
22x5	4.45	4.65	5.70	5.20	5.40	6.45	4.90	5.10	6.15	5.20	5.40	6.45
22x6	5.30	5.60	6.85	6.20	6.50	7.75	5.85	6.10	7.40	6.20	6.50	7.75
22x8	6.20	6.50	8.00	7.25	7.55	9.05	6.85	7.15	8.60	7.25	7.55	9.05
22x10	6.80	7.15	8.75	7.95	8.30	9.90	7.50	7.80	9.45	7.95	8.30	9.90
24x4	4.45	4.65	5.70	5.20	5.40	6.45	4.90	5.10	6.15	5.20	5.40	6.45
24x5	4.70	4.95	6.10	5.50	5.75	6.90	5.20	5.45	6.55	5.50	5.75	6.90
24x6	5.60	5.90	7.20	6.55	6.85	8.15	6.20	6.45	7.80	6.55	6.85	8.15
24x8	6.50	6.80	8.35	7.60	7.90	9.45	7.15	7.50	9.00	7.60	7.90	9.45
24x10	7.10	7.45	9.10	8.30	8.65	10.30	7.80	8.15	9.85	8.30	8.65	10.30
26x4	4.70	4.95	6.10	5.50	5.75	6.90	5.20	5.45	6.55	5.50	5.75	6.90
26x5	5.00	5.25	6.45	5.85	6.10	7.30	5.55	5.80	6.95	5.85	6.10	7.30
26x6	5.90	6.20	7.60	6.90	7.20	8.60	6.50	6.80	8.20	6.90	7.20	8.60
26x8	7.10	7.45	9.10	8.30	8.65	10.30	7.80	8.15	9.85	8.30	8.65	10.30
26x10	7.65	8.05	9.90	9.00	9.35	11.20	8.45	8.85	10.65	9.00	9.35	11.20
28x4	5.00	5.25	6.45	5.85	6.10	7.30	5.55	5.80	6.95	5.85	6.10	7.30
28x5	5.60	5.90	7.20	6.55	6.85	8.15	6.20	6.45	7.80	6.55	6.85	8.15
28x6	6.50	6.80	8.35	7.60	7.90	9.45	7.15	7.50	9.00	7.60	7.90	9.45
28x8	7.10	7.45	9.10	8.30	8.65	10.30	7.80	8.15	9.85	8.30	8.65	10.30
28x10	8.25	8.70	10.65	9.65	10.10	12.05	9.10	9.50	11.50	9.65	10.10	12.05
30x4	5.45	5.75	7.05	6.40	6.65	7.95	6.00	6.30	7.60	6.40	6.65	7.95
30x5	5.90	6.20	7.60	6.90	7.20	8.60	6.50	6.80	8.20	6.90	7.20	8.60
30x6	6.80	7.15	8.75	7.95	8.30	9.90	7.50	7.80	9.45	7.95	8.30	9.90
30x8	7.65	8.05	9.90	9.00	9.35	11.20	8.45	8.85	10.65	9.00	9.35	11.20
30x10	8.55	9.00	11.00	10.00	10.45	12.50	9.45	9.85	11.90	10.00	10.45	12.50
36x4	7.40	7.75	9.50	8.65	9.00	10.75	8.15	8.50	10.25	8.65	9.00	10.75
36x5	7.65	8.05	9.90	9.00	9.35	11.20	8.45	8.85	10.65	9.00	9.35	11.20
36x6	7.95	8.35	10.25	9.30	9.70	11.60	8.80	9.20	11.05	9.30	9.70	11.60
36x8	8.55	9.00	11.00	10.00	10.45	12.45	9.45	9.85	11.90	10.00	10.45	12.45
36x10	9.75	10.25	12.55	11.40	11.90	14.20	10.75	11.20	13.55	11.40	11.90	14.20

Additional sizes can be furnished.



# Independent "Fabrikated" Fine Mesh Air Conditioning Registers

REG. U. S. PAT. OFFICE

No. 312 and No. 322 with Grille Bars permanently set for either Straight Outward or Directed Air Flow

All Registers are Complete—With Single Valves and Setting Frames for Sidewall & Baseboard Installation.  
Baseboard Registers Complete One and Two Piece Styles with 7/8" Side and Top Projecting Flanges.

To Fit Stackhead Size: (Horizontal Dimension First) Inches	N Complete with WO Wall Frame			O Complete with WX or WT Wall Frame or BX Base Frame			P Complete 1 Piece BO Baseboard with 7/8" Projecting Flanges			Q Complete 2 Piece BT Baseboard with 7/8" Projecting Flanges		
	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze
8x6	\$3.55	\$3.70	\$4.45	\$4.10	\$4.25	\$5.00	\$3.90	\$4.05	\$4.80	\$4.10	\$4.25	\$5.00
10x4	3.40	3.55	4.25	3.90	4.05	4.75	3.70	3.85	4.55	3.90	4.05	4.75
10x5	3.55	3.70	4.45	4.10	4.25	5.00	3.90	4.05	4.80	4.10	4.25	5.00
10x6	3.75	3.95	4.70	4.30	4.50	5.25	4.05	4.25	5.00	4.30	4.50	5.25
10x8	4.10	4.25	5.10	4.70	4.85	5.70	4.45	4.60	5.45	4.70	4.85	5.70
12x4	3.55	3.70	4.45	4.10	4.25	5.00	3.90	4.05	4.80	4.10	4.25	5.00
12x5	3.90	4.10	4.90	4.45	4.65	5.45	4.25	4.45	5.25	4.45	4.65	5.45
12x6	4.10	4.25	5.10	4.70	4.85	5.70	4.45	4.60	5.45	4.70	4.85	5.70
12x8	4.45	4.65	5.55	5.10	5.30	6.20	4.85	5.05	5.95	5.10	5.30	6.20
12x9	4.75	4.95	5.95	5.45	5.65	6.65	5.20	5.40	6.40	5.45	5.65	6.65
12x10	5.45	5.70	6.80	6.25	6.50	7.60	5.90	6.15	7.25	6.25	6.50	7.60
14x4	3.75	3.95	4.70	4.30	4.50	5.25	4.05	4.25	5.00	4.30	4.50	5.25
14x5	4.10	4.25	5.10	4.70	4.85	5.70	4.45	4.60	5.45	4.70	4.85	5.70
14x6	4.45	4.65	5.55	5.10	5.30	6.20	4.85	5.05	5.95	5.10	5.30	6.20
14x8	4.75	4.95	5.95	5.45	5.65	6.65	5.20	5.40	6.40	5.45	5.65	6.65
14x10	6.10	6.40	7.65	7.00	7.30	8.55	6.65	6.95	8.20	7.00	7.30	8.55
16x4	3.90	4.10	4.90	4.45	4.65	5.45	4.25	4.45	5.25	4.45	4.65	5.45
16x5	4.30	4.50	5.35	4.90	5.10	5.95	4.65	4.85	5.70	4.90	5.10	5.95
16x6	4.75	4.95	5.95	5.45	5.65	6.65	5.20	5.40	6.40	5.45	5.65	6.65
16x8	5.45	5.70	6.80	6.25	6.50	7.60	5.90	6.15	7.30	6.25	6.50	7.60
16x10	6.45	6.75	8.10	7.40	7.70	9.05	7.05	7.30	8.65	7.40	7.70	9.05
18x4	4.10	4.25	5.10	4.70	4.85	5.70	4.45	4.60	5.45	4.70	4.85	5.70
18x5	4.45	4.65	5.55	5.10	5.30	6.20	4.85	5.05	5.95	5.10	5.30	6.20
18x6	5.15	5.35	6.40	5.90	6.10	7.15	5.60	5.80	6.85	5.90	6.10	7.15
18x8	6.10	6.40	7.65	7.00	7.30	8.55	6.65	6.95	8.20	7.00	7.30	8.55
18x10	6.95	7.30	8.70	8.00	8.30	9.75	7.60	7.90	9.35	8.00	8.30	9.75
20x4	4.45	4.65	5.55	5.10	5.30	6.20	4.85	5.05	5.95	5.10	5.30	6.20
20x5	4.75	4.95	5.95	5.45	5.65	6.65	5.20	5.40	6.40	5.45	5.65	6.65
20x6	5.80	6.05	7.25	6.65	6.90	8.10	6.30	6.55	7.75	6.65	6.90	8.10
20x8	6.80	7.10	8.50	7.80	8.10	9.50	7.40	7.70	9.10	7.80	8.10	9.50
20x10	7.50	7.80	9.35	8.60	8.90	10.45	8.15	8.45	10.00	8.60	8.90	10.45
22x4	4.75	4.95	5.95	5.45	5.65	6.65	5.20	5.40	6.35	5.45	5.65	6.65
22x5	5.10	5.35	6.40	5.85	6.10	7.15	5.55	5.80	6.85	5.85	6.10	7.15
22x6	6.10	6.40	7.65	7.00	7.30	8.55	6.65	6.95	8.20	7.00	7.30	8.55
22x8	7.15	7.45	8.95	8.20	8.50	10.00	7.75	8.10	9.55	8.20	8.50	10.00
22x10	7.80	8.15	9.80	8.95	9.30	10.95	8.50	8.85	10.45	8.95	9.30	10.95
24x4	5.15	5.35	6.40	5.90	6.10	7.15	5.60	5.80	6.85	5.90	6.10	7.15
24x5	5.45	5.70	6.80	6.25	6.50	7.60	5.90	6.15	7.25	6.25	6.50	7.60
24x6	6.50	6.75	8.10	7.45	7.70	9.05	7.10	7.35	8.70	7.45	7.70	9.05
24x8	7.50	7.80	9.35	8.60	8.90	10.45	8.15	8.45	10.00	8.60	8.90	10.45
24x10	8.15	8.50	10.20	9.35	9.70	11.40	8.90	9.25	10.90	9.35	9.70	11.40
26x4	5.45	5.70	6.80	6.25	6.50	7.60	5.90	6.15	7.30	6.25	6.50	7.60
26x5	5.80	6.05	7.25	6.65	6.90	8.10	6.30	6.55	7.75	6.65	6.90	8.10
26x6	6.80	7.10	8.50	7.80	8.10	9.50	7.40	7.70	9.10	7.80	8.10	9.50
26x8	8.15	8.50	10.20	9.35	9.70	11.40	8.90	9.25	10.90	9.35	9.70	11.40
26x10	8.85	9.25	11.05	10.15	10.55	12.35	9.60	10.00	11.85	10.15	10.55	12.35
28x4	5.80	6.05	7.25	6.65	6.90	8.10	6.30	6.55	7.75	6.65	6.90	8.10
28x5	6.45	6.75	8.10	7.40	7.70	9.05	7.05	7.30	8.65	7.40	7.70	9.05
28x6	7.50	7.80	9.35	8.60	8.90	10.45	8.15	8.45	10.00	8.60	8.90	10.45
28x8	8.15	8.50	10.20	9.35	9.70	11.40	8.90	9.25	10.90	9.35	9.70	11.40
28x10	9.50	9.95	11.90	10.90	11.35	13.30	10.35	10.80	12.75	10.90	11.35	13.30
30x4	6.30	6.55	7.85	7.25	7.50	8.80	6.85	7.10	8.40	7.25	7.50	8.80
30x5	6.80	7.10	8.50	7.80	8.10	9.50	7.40	7.70	9.10	7.80	8.10	9.50
30x6	7.85	8.20	9.80	9.00	9.35	10.95	8.55	8.90	10.50	9.00	9.35	10.95
30x8	8.85	9.25	11.05	10.15	10.55	12.35	9.60	10.00	11.80	10.15	10.55	12.35
30x10	9.90	10.30	12.35	11.35	11.75	13.80	10.80	11.20	13.25	11.35	11.75	13.80
36x4	8.50	8.90	10.65	9.75	10.15	11.90	9.25	9.65	11.40	9.75	10.15	11.90
36x5	8.85	9.25	11.05	10.15	10.55	12.35	9.60	10.00	11.85	10.15	10.55	12.35
36x6	9.20	9.60	11.50	10.55	10.95	12.85	10.00	10.40	12.30	10.55	10.95	12.85
36x8	9.85	10.30	12.35	11.30	11.75	13.80	10.75	11.15	13.20	11.30	11.75	13.80
36x10	11.20	11.70	14.05	12.85	13.35	15.70	12.20	12.70	15.00	12.85	13.35	15.70

Additional sizes can be furnished



# Independent Wall Grilles or Return Air Intakes

NO VALVES. NO WALL FRAMES.

Suitable for outlets when no valves are required.

To Fit Wall Opening Size: (Horizontal Dimension First) Inches	R Nos. 300 WG and 201 WG or RAI "Fabrikated" Nos. 82, 58 Wrt Stl. WG or RAI			S Nos. 211, 311, 321 WG or RAI "Fabrikated"			T No. 311 A-WG or RAI No. 321 A-WG or RAI "Fabrikated"			U No. 312 WG or RAI No. 322 WG or RAI "Fabrikated"		
	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze
8x6	\$1.20	\$1.35	\$2.10	\$1.45	\$1.60	\$2.35	\$2.00	\$2.15	\$2.90	\$2.45	\$2.60	\$3.35
10x4	1.15	1.30	2.00	1.40	1.55	2.25	1.90	2.05	2.75	2.35	2.50	3.20
10x5	1.20	1.35	2.10	1.45	1.60	2.35	2.00	2.15	2.90	2.45	2.60	3.35
10x6	1.25	1.45	2.20	1.55	1.75	2.50	2.10	2.25	3.05	2.55	2.75	3.50
10x8	1.40	1.55	2.40	1.70	1.85	2.70	2.30	2.45	3.30	2.85	3.00	3.85
12x4	1.20	1.35	2.10	1.45	1.60	2.35	2.00	2.15	2.90	2.45	2.60	3.35
12x5	1.30	1.50	2.30	1.60	1.80	2.60	2.20	2.35	3.15	2.70	2.90	3.70
12x6	1.40	1.55	2.40	1.70	1.85	2.70	2.30	2.45	3.30	2.85	3.00	3.85
12x8	1.50	1.70	2.60	1.85	2.05	2.95	2.45	2.65	3.60	3.05	3.25	4.15
12x9	1.60	1.80	2.80	1.95	2.15	3.15	2.65	2.85	3.85	3.30	3.50	4.50
12x10	1.85	2.10	3.20	2.25	2.50	3.60	3.05	3.30	4.40	3.75	4.00	5.10
14x4	1.25	1.45	2.20	1.55	1.75	2.50	2.10	2.25	3.05	2.55	2.75	3.50
14x5	1.40	1.55	2.40	1.70	1.85	2.70	2.30	2.45	3.30	2.85	3.00	3.85
14x6	1.50	1.70	2.60	1.85	2.05	2.95	2.45	2.65	3.60	3.05	3.25	4.15
14x8	1.60	1.80	2.80	1.95	2.15	3.15	2.65	2.85	3.85	3.30	3.50	4.50
14x10	2.05	2.35	3.60	2.50	2.80	4.05	3.40	3.70	4.95	4.20	4.50	5.75
16x4	1.30	1.50	2.30	1.60	1.80	2.60	2.20	2.35	3.15	2.70	2.90	3.70
16x5	1.45	1.65	2.50	1.75	1.95	2.80	2.40	2.55	3.45	2.95	3.15	4.00
16x6	1.60	1.80	2.80	1.95	2.15	3.15	2.65	2.85	3.85	3.30	3.50	4.50
16x8	1.85	2.10	3.20	2.25	2.50	3.60	3.05	3.30	4.40	3.75	4.00	5.10
16x10	2.20	2.45	3.80	2.65	2.95	4.30	3.60	3.90	5.25	4.45	4.75	6.10
18x4	1.40	1.55	2.40	1.70	1.85	2.70	2.30	2.45	3.30	2.85	3.00	3.85
18x5	1.50	1.70	2.60	1.85	2.05	2.95	2.45	2.65	3.60	3.05	3.25	4.15
18x6	1.75	1.95	3.00	2.15	2.35	3.40	2.85	3.10	4.15	3.55	3.75	4.80
18x8	2.05	2.35	3.60	2.50	2.80	4.05	3.40	3.70	4.95	4.25	4.50	5.75
18x10	2.35	2.65	4.10	2.85	3.20	4.60	3.90	4.20	5.65	4.80	5.15	6.55
20x4	1.50	1.70	2.60	1.85	2.05	2.95	2.45	2.65	3.60	3.05	3.25	4.15
20x5	1.60	1.80	2.80	1.95	2.15	3.15	2.65	2.85	3.85	3.30	3.50	4.50
20x6	1.95	2.20	3.40	2.40	2.65	3.85	3.25	3.50	4.70	4.00	4.25	5.45
20x8	2.30	2.60	4.00	2.80	3.10	4.50	3.80	4.10	5.50	4.70	5.00	6.40
20x10	2.55	2.85	4.40	3.10	3.40	4.95	4.20	4.50	6.05	5.15	5.50	7.05
22x4	1.60	1.80	2.80	1.95	2.15	3.15	2.65	2.85	3.85	3.30	3.50	4.50
22x5	1.75	1.95	3.00	2.10	2.35	3.40	2.85	3.10	4.15	3.55	3.75	4.80
22x6	2.05	2.35	3.60	2.50	2.80	4.05	3.40	3.70	4.95	4.20	4.50	5.75
22x8	2.40	2.75	4.20	2.95	3.25	4.75	4.00	4.30	5.80	4.95	5.25	6.70
22x10	2.65	3.00	4.60	3.20	3.55	5.20	4.35	4.70	6.35	5.40	5.75	7.35
24x4	1.75	1.95	3.00	2.15	2.35	3.40	2.85	3.10	4.15	3.55	3.75	4.80
24x5	1.85	2.10	3.20	2.25	2.50	3.60	3.05	3.30	4.40	3.75	4.00	5.10
24x6	2.20	2.45	3.80	2.70	2.95	4.30	3.60	3.90	5.25	4.50	4.75	6.10
24x8	2.55	2.85	4.40	3.10	3.40	4.95	4.20	4.50	6.05	5.20	5.50	7.05
24x10	2.75	3.10	4.80	3.35	3.70	5.40	4.55	4.90	6.60	5.65	6.00	7.70
26x4	1.85	2.10	3.20	2.25	2.50	3.60	3.05	3.30	4.40	3.75	4.00	5.10
26x5	1.95	2.20	3.40	2.40	2.65	3.85	3.25	3.50	4.70	4.00	4.25	5.45
26x6	2.30	2.60	4.00	2.80	3.10	4.50	3.80	4.10	5.50	4.70	5.00	6.40
26x8	2.75	3.10	4.80	3.35	3.70	5.40	4.55	4.90	6.60	5.65	6.00	7.70
26x10	3.00	3.40	5.20	3.65	4.05	5.85	4.95	5.35	7.15	6.10	6.50	8.30
28x4	1.95	2.20	3.40	2.40	2.65	3.85	3.25	3.50	4.70	4.00	4.25	5.45
28x5	2.20	2.45	3.80	2.65	2.95	4.30	3.60	3.90	5.25	4.50	4.75	6.10
28x6	2.55	2.85	4.40	3.10	3.40	4.95	4.20	4.50	6.05	5.20	5.50	7.05
28x8	2.75	3.10	4.80	3.35	3.70	5.40	4.55	4.90	6.60	5.65	6.00	7.70
28x10	3.20	3.65	5.60	3.90	4.35	6.30	5.30	5.75	7.70	6.60	7.00	8.95
30x4	2.15	2.40	3.70	2.60	2.85	4.15	3.50	3.80	5.10	4.35	4.60	5.90
30x5	2.30	2.60	4.00	2.80	3.10	4.50	3.80	4.10	5.50	4.70	5.00	6.40
30x6	2.65	3.00	4.60	3.25	3.60	5.20	4.35	4.70	6.35	5.40	5.75	7.35
30x8	3.00	3.40	5.20	3.65	4.05	5.85	4.95	5.35	7.15	6.10	6.50	8.30
30x10	3.35	3.75	5.80	4.10	4.50	6.55	5.50	5.95	8.00	6.85	7.25	9.30
36x4	2.90	3.25	5.00	3.50	3.90	5.65	4.75	5.15	6.90	5.90	6.25	8.00
36x5	3.00	3.40	5.20	3.65	4.05	5.85	4.95	5.35	7.15	6.10	6.50	8.30
36x6	3.10	3.50	5.40	3.80	4.20	6.10	5.15	5.55	7.45	6.35	6.75	8.65
36x8	3.35	3.75	5.80	4.10	4.50	6.55	5.50	5.95	8.00	6.85	7.25	9.30
36x10	3.80	4.30	6.60	4.65	5.15	7.45	6.25	6.75	9.10	7.75	8.25	10.55
46x4	3.45	3.90	6.00	4.20	4.65	6.75	5.70	6.15	8.25	7.05	7.50	9.60
46x5	3.55	4.05	6.20	4.35	4.80	7.00	5.90	6.35	8.55	7.30	7.75	9.90
46x6	3.80	4.30	6.60	4.60	5.10	7.45	6.25	6.75	9.10	7.75	8.25	10.55
46x8	4.15	4.70	7.20	5.05	5.60	8.10	6.85	7.40	9.90	8.45	9.00	11.50
46x10	5.20	5.85	9.00	6.30	7.00	10.15	8.55	9.25	12.40	10.60	11.25	14.40

Additional sizes can be furnished.



# Independent Air Conditioning Baseboard Intakes

With Side and Top Projecting Flanges extending outward  $\frac{7}{8}$  inch from the plaster line.  
No Valves. Suitable for outlets when no valves are required.

To Fit Wall Opening Size (Horizontal Dimension First) Inches	V Nos. 300 BBI and 201 BBI "Fabrikated" Nos. 58 and 82 BBI Wrought Steel			W Nos. 211, 311, 321 BBI "Fabrikated"			X Nos. 311 A, 321 A-BBI "Fabrikated"			Y Nos. 312, 322 BBI "Fabrikated"			Z Add to List Prices for Duct Fitting Flanges
	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	
8x6	\$1.55	\$1.70	\$2.45	\$1.80	\$1.95	\$2.70	\$2.30	\$2.45	\$3.20	\$2.80	\$2.95	\$3.70	\$ .30
10x4	1.45	1.60	2.30	1.70	1.85	2.55	2.20	2.35	3.05	2.65	2.80	3.50	.30
10x5	1.55	1.70	2.45	1.80	1.95	2.70	2.30	2.45	3.20	2.80	2.95	3.70	.30
10x6	1.55	1.75	2.50	1.85	2.05	2.80	2.40	2.60	3.35	2.85	3.05	3.80	.35
10x8	1.75	1.90	2.75	2.05	2.20	3.05	2.65	2.80	3.65	3.20	3.35	4.20	.35
12x4	1.55	1.70	2.45	1.80	1.95	2.70	2.30	2.45	3.20	2.80	2.95	3.70	.30
12x5	1.65	1.85	2.65	1.95	2.15	2.95	2.55	2.70	3.50	3.05	3.25	4.05	.35
12x6	1.75	1.90	2.75	2.05	2.20	3.05	2.65	2.80	3.65	3.20	3.35	4.20	.35
12x8	1.90	2.10	3.00	2.25	2.45	3.35	2.85	3.05	3.95	3.45	3.65	4.55	.40
12x9	2.05	2.25	3.25	2.40	2.60	3.60	3.10	3.30	4.25	3.75	3.95	4.95	.40
12x10	2.30	2.55	3.65	2.70	2.95	4.05	3.50	3.75	4.90	4.20	4.45	5.55	.50
14x4	1.55	1.75	2.50	1.85	2.05	2.80	2.40	2.60	3.35	2.85	3.05	3.80	.35
14x5	1.75	1.90	2.75	2.05	2.20	3.05	2.65	2.80	3.65	3.20	3.35	4.20	.35
14x6	1.90	2.10	3.00	2.25	2.45	3.35	2.85	3.05	3.95	3.45	3.65	4.55	.40
14x8	2.05	2.25	3.25	2.40	2.60	3.60	3.10	3.30	4.25	3.75	3.95	4.95	.40
14x10	2.60	2.90	4.15	3.05	3.35	4.60	3.95	4.25	5.50	4.75	5.05	6.30	.55
18x4	1.75	1.90	2.75	2.05	2.20	3.05	2.65	2.80	3.65	3.20	3.35	4.20	.35
18x5	1.90	2.10	3.00	2.25	2.40	3.30	2.85	3.05	3.95	3.45	3.65	4.55	.40
18x6	2.20	2.40	3.45	2.55	2.80	3.85	3.30	3.55	4.60	4.00	4.20	5.25	.45
18x8	2.60	2.90	4.15	3.05	3.35	4.60	3.95	4.25	5.50	4.75	5.05	6.30	.55
18x10	2.95	3.30	4.70	3.50	3.80	5.25	4.50	4.80	6.25	5.45	5.75	7.20	.60
24x4	2.20	2.40	3.45	2.60	2.80	3.85	3.30	3.55	4.60	4.00	4.20	5.25	.45
24x5	2.30	2.55	3.65	2.70	2.95	4.05	3.50	3.75	4.90	4.20	4.45	5.55	.50
24x6	2.80	3.05	4.40	3.30	3.55	4.90	4.20	4.45	5.80	5.10	5.35	6.70	.55
24x8	3.20	3.50	5.05	3.75	4.05	5.60	4.85	5.15	6.70	5.85	6.15	7.70	.65
24x10	3.50	3.85	5.50	4.10	4.45	6.10	5.30	5.65	7.30	6.35	6.70	8.40	.70
30x4	2.70	2.95	4.25	3.15	3.40	4.70	4.05	4.35	5.65	4.90	5.15	6.45	.55
30x5	2.90	3.20	4.60	3.40	3.70	5.10	4.40	4.70	6.10	5.30	5.60	7.00	.60
30x6	3.35	3.70	5.30	3.95	4.30	5.90	5.05	5.40	7.00	6.10	6.45	8.05	.70
30x8	3.75	4.15	5.95	4.40	4.80	6.60	5.70	6.10	7.95	6.85	7.25	9.05	.80
30x10	4.20	4.65	6.65	4.95	5.35	7.40	6.40	6.80	8.85	7.70	8.10	10.15	.85
36x4	3.65	4.00	5.75	4.25	4.65	6.40	5.50	5.90	7.65	6.65	7.00	8.75	.75
36x5	3.75	4.20	6.00	4.40	4.80	6.65	5.70	6.10	7.95	6.90	7.30	9.10	.80
36x6	3.90	4.30	6.20	4.60	5.00	6.90	5.95	6.35	8.25	7.15	7.55	9.45	.80
36x8	4.20	4.65	6.65	4.95	5.35	7.40	6.40	6.80	8.85	7.70	8.10	10.15	.85
36x10	4.80	5.30	7.60	5.60	6.10	8.40	7.25	7.75	10.05	8.75	9.25	11.55	1.00

Additional sizes can be furnished.

## Finishes — Independent Registers and Grilles

Regularly made in a great variety of finishes, those specified  
below cover the usual requirements.

The finish desired should be specified on all orders.

If not otherwise specified Air Conditioning Registers and Grilles for use in  
the wall or baseboard are furnished in Grey Prime Coat finish.

### Semi-Finished

MF.....Mill Finish (No  
Finish).

WPC.....Baked White Priming  
Coat (Ready for  
Painting).

GPC.....Baked Grey Priming  
Coat (Ready for  
Painting).

### Lacquer

Ox. Cop. L. ....Imitation Oxidized  
Copper Plating.

ABL.....Antique Bronze.

BrL .....Brass.

WGL .....White Gold.

CopL .....Copper.

WhL .....White, Egg Shell Finish.

BlkL .....Black, Egg Shell Finish.

IvL .....Ivory, Egg Shell Finish.

### Japan

BJ.....Black Japan.

WJ.....White Japan (Not  
suitable for use in  
the floor).

### Electro Plated

Ox. Cop. Pl. ....Oxidized Copper.

N. Pl. ....Nickel.

Br. Br. Pl. ....Brush Brass.

Brass Pl. ....Bright Brass.

Bz. Pl. ....Bronze (Light).

Sta. Bz. Pl. ....Statuary Bronze  
(Dark).

Chr. Pl. ....Chromium.

Cad. Pl. ....Cadmium.

### Imitation Oak Enamel

GO.....Medium Dark with Distinct  
Graining, Gloss Finish.

MLO....Medium Light with Fine  
Graining, Gloss Finish.

LO .....Light Oak, Light Shade and  
Light Graining, Gloss  
Finish.

LOD.....Light Oak, Dull Finish.

DOD ....Dark Oak, Dull Finish.



# MV

## Registers with Multiple Valves

Styles HMV and VMV

Add the following list prices to the list prices of registers with single valve.

Register Size	List Price	Register Size	List Price	Register Size	List Price	Register Size	List Price
8x6	\$1.30						
10x4	1.25	16x4	\$1.45	22x4	\$1.75	28x4	\$2.15
10x5	1.30	16x5	1.55	22x5	1.90	28x5	2.40
10x6	1.35	16x6	1.75	22x6	2.25	28x6	2.75
10x8	1.50	16x8	2.00	22x8	2.65	28x8	3.00
12x4	1.30	16x10	2.40	22x10	2.90	28x10	3.50
12x5	1.45	18x4	1.50	24x4	1.85	30x4	2.30
12x6	1.50	18x5	1.60	24x5	2.00	30x5	2.50
12x8	1.60	18x6	1.85	24x6	2.35	30x6	2.85
12x9	1.75	18x8	2.25	24x8	2.75	30x8	3.25
12x10	2.00	18x10	2.55	24x10	3.00	30x10	3.60
14x4	1.35	20x4	1.60	26x4	2.00	36x4	3.15
14x5	1.50	20x5	1.75	26x5	2.15	36x5	3.25
14x6	1.60	20x6	2.10	26x6	2.50	36x6	3.40
14x8	1.75	20x8	2.50	26x8	3.00	36x8	3.65
14x10	2.25	20x10	2.75	26x10	3.25	36x10	4.15

# SV

## Single Valves

To secure the list prices of "registers less valves" deduct the list prices below from the list prices of single valve registers.

Register Size	List Price	Register Size	List Price	Register Size	List Price	Register Size	List Price
8x6	\$ .80						
10x4	.75	16x4	\$ .85	22x4	\$1.05	28x4	\$1.30
10x5	.80	16x5	.95	22x5	1.15	28x5	1.45
10x6	.85	16x6	1.05	22x6	1.35	28x6	1.65
10x8	.90	16x8	1.20	22x8	1.60	28x8	1.80
12x4	.80	16x10	1.45	22x10	1.75	28x10	2.10
12x5	.85	18x4	.90	24x4	1.15	30x4	1.40
12x6	.90	18x5	1.00	24x5	1.20	30x5	1.50
12x8	1.00	18x6	1.15	24x6	1.45	30x6	1.75
12x9	1.05	18x8	1.35	24x8	1.65	30x8	1.95
12x10	1.20	18x10	1.55	24x10	1.80	30x10	2.20
14x4	.85	20x4	1.00	26x4	1.20	36x4	1.90
14x5	.90	20x5	1.05	26x5	1.30	36x5	1.95
14x6	1.00	20x6	1.30	26x6	1.50	36x6	2.05
14x8	1.05	20x8	1.50	26x8	1.80	36x8	2.20
14x10	1.35	20x10	1.65	26x10	1.95	36x10	2.50

# WF

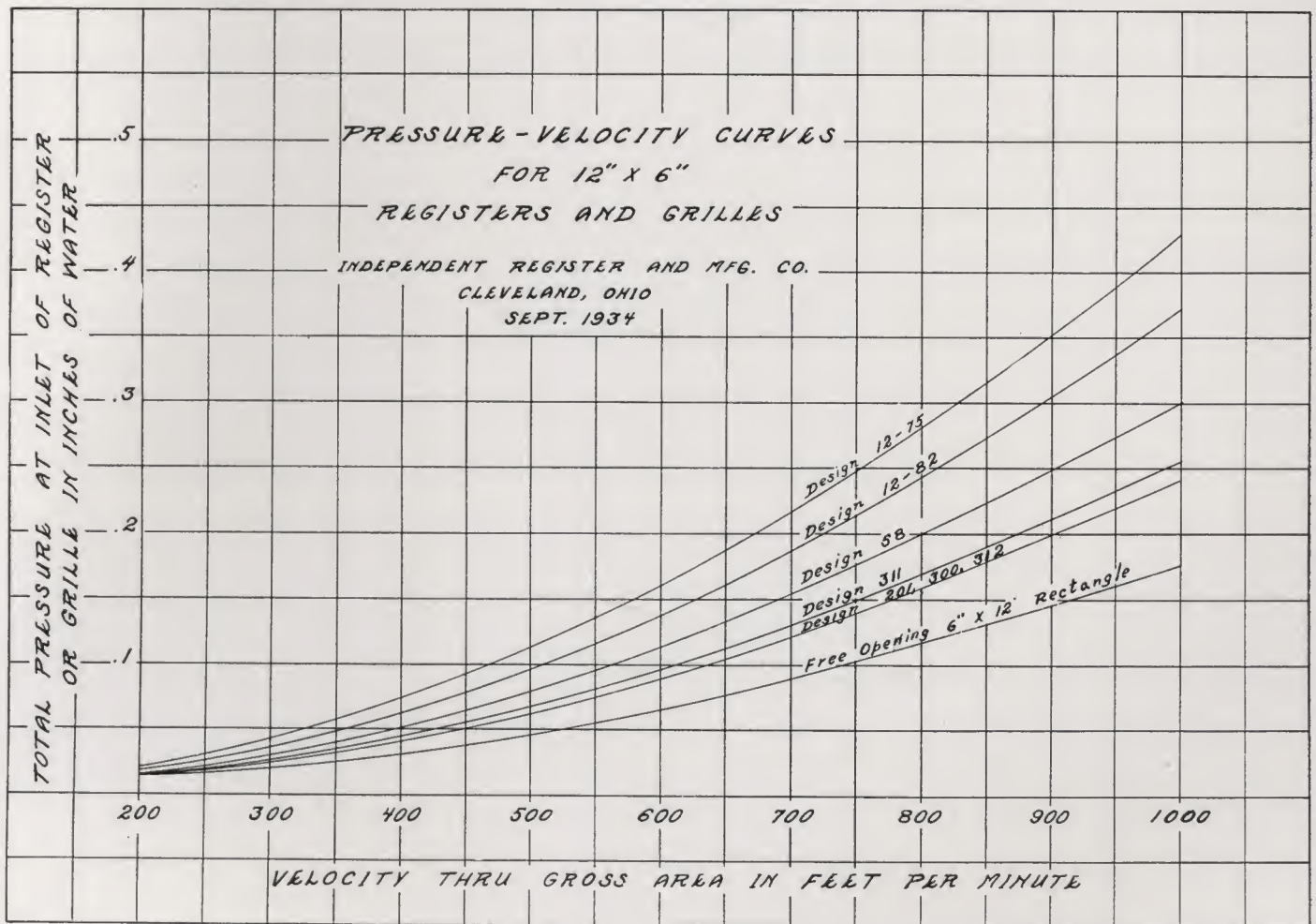
## Wall and Baseboard Frames

List Prices on Frames only when purchased separately or if omitted from registers.

Register Size	WO Frame	WX, WT, or BX Frame	Register Size	WO Frame	WX, WT, or BX Frame	Register Size	WO Frame	WX, WT, or BX Frame	Register Size	WO Frame	WX, WT, or BX Frame
8x6	\$ .30	\$ .85									
10x4	.30	.80	16x4	\$ .35	\$ .90	22x4	\$ .40	\$1.10	28x4	\$ .50	\$1.35
10x5	.30	.85	16x5	.40	1.00	22x5	.45	1.20	28x5	.55	1.50
10x6	.35	.90	16x6	.40	1.10	22x6	.55	1.45	28x6	.65	1.75
10x8	.35	.95	16x8	.50	1.30	22x8	.65	1.70	28x8	.70	1.90
12x4	.30	.85	16x10	.55	1.50	22x10	.70	1.85	28x10	.85	2.25
12x5	.35	.90	18x4	.35	.95	24x4	.45	1.20	30x4	.55	1.50
12x6	.35	.95	18x5	.40	1.05	24x5	.50	1.30	30x5	.60	1.60
12x8	.40	1.05	18x6	.45	1.20	24x6	.55	1.50	30x6	.70	1.85
12x9	.40	1.10	18x8	.55	1.45	24x8	.65	1.75	30x8	.80	2.10
12x10	.50	1.30	18x10	.60	1.65	24x10	.70	1.90	30x10	.85	2.30
14x4	.35	.90	20x4	.40	1.05	26x4	.50	1.30	36x4	.75	2.00
14x5	.35	.95	20x5	.40	1.10	26x5	.50	1.35	36x5	.80	2.10
14x6	.40	1.05	20x6	.50	1.35	26x6	.60	1.60	36x6	.80	2.15
14x8	.40	1.10	20x8	.60	1.60	26x8	.70	1.90	36x8	.85	2.30
14x10	.55	1.45	20x10	.65	1.75	26x10	.80	2.10	36x10	1.00	2.65



# Independent Registers and Grilles For Forced Air





## Capacities—CFM Rating of Air Conditioning Registers

The CFM ratings on Independent Registers and Grilles, as shown on the following pages are based on the table or formula which has been used in computations for some time past and are conservative. Many thousands of successful installations have been made on the basis of this formula.

The 1936 Guide of the American Society of Heating and Ventilating Engineers, Chapter 43, page 765, gives a suggested formula, which was developed by Professor Lynn E. Davies in connection with a co-operative investigation between Armour Institute of Technology and the American Society of Heating and Ventilating Engineers.

This formula gives the capacity of registers and grilles when measurements are made with the ANEMOMETER.

$$C \times V \times \left\{ \frac{A + a}{2} \right\} \text{ equals C F M}$$

C — A constant which varies with velocity.

V — Velocity measured by the anemometer.

A — Gross area of grille in square feet.

a — Net free area of grille in square feet.  
(pages 33, 34 and 35 show square inches)

Values of C for Various Velocities

Indicated Velocity F. P. M.	Supply Grilles
150	0.952
200	0.957
300	0.967
400	0.977
500	0.985
600	0.992
700	0.998
800	1.000

Values of C for average use	<div> { Low velocity ..... 0.97  { High velocity ..... 1.00 </div>
-----------------------------	--

### EXAMPLE:

No. 311 Register. Size 12 x 6  
Gross area, 72", or 0.5 Sq. Ft.  
Net area, 43", or 0.2986 Sq. Ft.  
Velocity — 400 FPM

$$.977 \times 400 \times \frac{.5 + .2986}{2} \text{ equals } 156 \text{ CFM}$$



# Capacities

Based on square feet of open (free) area, multiplied by air velocity.

Nos. 300 or 201 "Fabrikated" Wall Registers, Baseboard Registers and Baseboard Intakes

Reg- ister Size	Open (Free) Area Sq.in.	Cubic Feet per Min. thru Registers								Reg- ister Size	Open (Free) Area Sq.in.	Cubic Feet per Min. thru Registers								Reg- ister Size	Open (Free) Area Sq.in.	Cubic Feet per Min. thru Registers							
		F. P. M.										F. P. M.										F. P. M.							
		200	250	300	380	400	500	600	800			200	250	300	380	400	500	600	800			200	250	300	380	400	500	600	800
8x6	27	37	46	56	71	75	93	112	150	18x4	43	60	75	91	115	121	151	182	243	26x5	85	118	147	177	224	236	295	354	472
10x4	23	32	40	48	61	64	81	97	129	5	58	80	100	120	153	161	201	241	322	6	107	148	186	223	282	297	372	446	595
5	31	43	54	65	82	87	118	130	173	6	70	97	121	146	185	194	243	292	389	8	152	211	264	317	402	423	528	634	845
6	39	55	68	82	104	109	137	164	219	8	103	143	179	215	273	287	359	431	574	10	195	271	339	406	514	541	677	813	1080
8	56	77	97	116	147	155	194	233	310	10	134	186	233	280	354	373	466	559	745	28x4	68	94	118	141	179	189	236	283	377
12x4	28	39	49	59	75	78	98	118	157	20x4	48	67	84	101	128	134	168	202	269	5	92	127	159	191	243	256	319	383	511
5	38	53	66	79	101	106	133	159	212	5	65	91	113	136	173	182	227	273	364	6	116	161	201	242	306	322	403	484	645
6	48	66	83	100	126	133	167	200	267	6	82	114	142	171	217	228	285	342	457	8	164	228	285	342	433	455	570	683	911
8	68	94	118	141	179	189	236	283	377	8	116	161	201	242	306	322	403	484	645	10	213	296	370	444	562	592	740	887	1180
9	78	108	135	162	205	216	270	324	432	10	150	209	261	313	397	417	523	627	836	30x4	73	102	127	153	194	204	255	316	408
10	88	122	152	183	232	244	305	366	488	22x4	53	73	91	110	139	147	183	220	294	5	99	137	172	206	261	275	344	413	550
14x4	33	46	58	69	88	92	116	139	185	5	71	99	124	149	188	198	248	298	397	6	124	173	216	259	328	346	433	519	692
5	45	62	78	94	119	125	156	188	250	6	90	125	156	187	237	250	312	375	500	8	176	245	306	367	465	490	613	735	980
6	56	78	98	118	149	157	197	236	315	8	127	176	220	264	335	353	441	529	706	10	228	316	395	474	600	632	790	947	1264
8	80	111	139	166	211	222	278	333	444	10	165	229	286	344	436	458	573	687	917	36x4	88	122	152	185	232	244	305	366	488
10	103	143	179	215	273	287	359	431	574	24x4	58	81	101	121	153	161	202	242	323	5	119	165	206	258	314	330	413	496	662
16x4	38	53	66	80	101	106	133	160	213	5	79	109	136	164	208	219	274	328	437	6	149	207	259	310	393	414	517	621	827
5	52	72	90	108	136	144	180	216	288	6	99	137	172	206	261	275	344	413	550	8	211	293	366	439	556	586	732	877	1170
6	62	86	108	129	164	172	215	258	345	8	140	194	242	291	368	388	485	582	776	10	273	379	474	569	720	758	947	1135	1515
8	92	128	160	192	243	256	320	384	522	10	180	251	313	376	477	502	627	753	1000										
10	119	165	206	248	314	331	413	496	661	26x4	63	87	109	131	166	175	218	262	350										

Nos. 311, 321 or 211 "Fabrikated" Wall Registers, Baseboard Registers, Baseboard Intakes

8x6	27	37	46	56	71	75	93	112	150	18x4	39	54	67	81	103	108	135	162	217	26x5	77	107	133	160	203	214	268	321	428
10x4	21	29	36	44	55	58	73	87	117	5	53	73	91	110	139	147	183	220	294	6	97	135	168	202	256	270	337	405	540
5	28	39	49	59	75	78	98	118	157	6	65	90	112	135	171	180	225	270	360	8	135	187	234	281	356	375	469	562	750
6	36	50	62	74	94	100	124	149	199	8	92	127	159	191	243	256	319	383	511	10	173	240	300	360	456	480	600	720	960
8	50	69	86	104	132	139	173	208	278	10	119	165	206	258	314	330	413	496	662	28x4	61	84	106	127	161	169	212	254	339
12x4	26	36	44	53	68	71	89	107	143	20x4	44	61	76	91	116	122	153	183	245	5	83	115	144	173	219	231	288	346	462
5	35	48	60	72	91	96	121	145	193	5	59	82	103	123	156	165	206	247	330	6	105	146	182	219	277	292	365	437	584
6	43	60	75	91	115	121	151	182	243	6	75	104	130	156	197	208	262	312	416	8	147	204	255	306	388	408	511	612	816
8	61	84	106	127	161	169	212	254	339	8	104	144	180	217	275	289	362	434	578	10	188	261	326	392	496	522	653	784	1045
9	69	95	120	143	182	192	240	288	383	10	134	186	233	280	354	373	466	559	745	30x4	66	92	115	138	175	185	231	278	370
10	78	108	135	163	206	217	271	326	434	22x4	48	66	83	100	126	133	166	200	266	5	89	123	154	185	235	247	309	371	495
14x4	30	42	52	63	80	84	105	126	168	5	65	90	112	135	171	180	225	270	360	6	113	157	196	236	298	314	393	472	628
5	41	57	71	85	108	113	142	171	228	6	82	114	143	172	218	229	287	344	459	8	158	220	274	329	417	439	549	659	879
6	51	71	89	107	136	143	178	214	286	8	114	158	198	237	301	316	396	475	633	10	202	281	351	422	534	562	703	843	1123
8	71	99	124	149	188	198	248	298	397	10	147	204	255	306	388	408	511	612	816	36x4	79	110	137	164	208	219	274	329	438
10	92	127	159	191	243	256	319	383	511	24x4	53	73	91	110	139	147	183	220	294	5	106	147	184	221	280	294	368	442	589
16x4	35	48	60	72	91	96	121	145	193	5	71	99	124	149	188	198	248	298	397	6	136	189	236	283	359	378	472	566	755
5	47	65	82	98	124	131	164	197	262	6	90	125	156	187	237	250	312	375	500	8	189	262	328	394	498	525	657	787	1050
6	58	80	100	120	153	161	201	241	322	8	125	174	217	261	331	348	435	523	697	10	242	336	420	504	638	672	840	1010	1345
8	82	114	143	172	218	229	287	344	459	10	160	223	279	334	424	446	557	669	892										
10	106	147	184	221	280	294	368	442	589	26x4	57	79	99	118	150	158	198	237	316										

Nos. 312 or 322 "Fabrikated" Wall Registers, Baseboard Registers and Baseboard Intakes

8x6	26	40	50	60	76	80	101	120	160	18x4	41	57	71	85	108	113	142	171	228	26x5	83	115	144	173	219	231	288	346	462
10x4	22	30	38	46	58	61	76	91	122	5	56	77	97	116	147	155	194	233	311	6	104	144	180	217	275	289	362	434	578
5	30	42	52	63	80	84	105	126	168	6	70	98	122	146	186	196	244	294	391	8	147	204	255	306	388	408	511	612	816
6	38	53	66	79	101	106	133	159	212	8	99	151	189	227	287	303	378	454	605	10	190	264	330	396	502	528	660	792	1055
8	53	73	91	110	139	147	183	220	294	10	128	177	222	266	337	355	444	532	710	28x4	66	92	115	138	175	185	231	278	370
12x4	27	37	46	56	71	75	93	112	150	20x4	45	62	78	93	118	125	156	187	250	5	90	125	156	187	237	250	312	375	500
5	36	50	62	74	94	100	124	149	199	5	63	87	109	131	166	175	218	262	350	6	112	156	195	234	296	312	388	468	625
6	46	64	80	96	121	128	160	192	256	6	78	108	135	162	205	216	270	324	432	8	159	221	277	332	421	443	554	665	886
8	65	90	112	135	171	180	225	270	360	8	111	154	193	231	293	308	385	462	616	10	205	285	356	427	541	570	712	855	1140
9	74	103	128	154	195	205	257	308	411	10	144	200	250	300	380	400	500	600	800	30x4	72	100	125	150	190	200	250	300	400
10	84	117	146	176	223	235	293	352	469	22x4	51	71	89	107	135	142	178	213	284	5	97	135	168	202	256	270	337	405	540
14x4	32	44	55	67	85	89	111	134	178	5	69	95	120	143	182	192	240	288	383	6	122	169	211	254	321	338	427	507	676
5	43	60	75	91	115	121	151	182	243	6	87	121	151	181	229	242	302	363	483	8	173	240	300	360	456	480	600	720	960
6	54	75	94	114	144	151	189	227	303	8	123	171	213	256	325	342	427	513	683	10	223	310	387	465	588	619	774	928	1238
8	74	103	128	159	202	212	265	319	425	10	158	221	276	331	418	442	552	662	883	36x4	87	121	151	181	229	242	302	363	483
10	98	136	170	204	258	272	340	408	544	24x4	84	117	148	182	225	242	302	363	483	5	117	167	204	239	294	325	406	487	650
16x4	37	51	64	77	97	103	128	154	206	5	76	106	132	159	202	212	265	319	425	51	147	204	239	294	325	406	487	650	
5	49	68	85	102	129	136	170	204	272	6	96	133	167	200	253	267	334	401	534	8	208	289	361	433	548	577	722	865	1157
6	62	86	108	129	164	172	215	258	345	8	135	187	234	281	356	375	469	562	750	10	269	374	467	561	710	747	934	1120	1490
8	87	121	151	181	229	242	302	363	483	10	175	243	303	364	461	485	607	728	971										
10	113	157	196	236	298	314	393	472	628	26x4	61	84	106	127	161	169	212	254	339										



# Capacities

Based on square feet of open (free) area, multiplied by air velocity.

No. 158, 258 Wall Registers; 158 BO, 258 BT Baseboard Registers; 58 BBI Baseboard Intakes; 58 RAI Grilles

Grille Size	Open (Free) Area Sq.in.	Cubic Feet per Min. thru Grilles								Grille Size	Open (Free) Area Sq.in.	Cubic Feet per Min. thru Grilles								Grille Size	Open (Free) Area Sq.in.	Cubic Feet per Min. thru Grilles							
		F. P. M.										F. P. M.										F. P. M.							
		200	250	300	380	400	500	600	800			200	250	300	380	400	500	600	800			200	250	300	380	400	500	600	800
8x6	29	41	51	61	78	82	102	123	164	18x4	42	58	72	87	110	116	145	174	232	26x5	82	115	143	172	218	230	287	345	460
10x4	21	29	36	44	55	58	73	87	117	5	55	76	95	114	145	153	191	230	306	6	101	141	176	211	267	281	351	422	562
5	29	41	51	61	78	82	102	123	164	6	68	94	118	142	180	189	237	284	379	8	136	188	236	283	359	378	472	567	755
6	36	50	62	75	95	100	125	150	200	8	92	128	160	192	243	256	320	384	522	10	175	243	304	365	462	487	608	730	973
8	48	66	83	100	126	133	167	200	267	10	118	170	212	255	323	340	425	510	680	28x4	69	95	120	144	182	192	240	288	384
12x4	28	39	49	59	75	78	98	118	157	20x4	48	66	83	100	126	133	167	200	267	5	90	125	156	187	237	250	312	375	500
5	37	52	65	78	98	103	129	155	207	5	63	87	109	131	166	175	219	262	350	6	111	154	193	231	293	308	385	463	617
6	46	64	80	96	122	129	161	193	258	8	78	108	135	162	206	216	271	325	433	8	150	209	261	313	397	417	523	627	836
8	61	84	105	126	160	169	211	253	337	8	106	147	184	221	280	294	368	442	589	10	192	267	333	400	506	533	666	800	1065
9	70	98	122	147	186	196	245	294	392	10	136	189	236	283	359	378	473	566	755	30x4	73	102	127	153	194	204	255	316	408
10	79	109	136	164	208	219	273	328	437	22x4	53	73	91	110	139	147	183	220	294	5	95	132	165	198	251	264	330	396	528
14x4	32	44	55	67	85	89	111	134	178	5	69	95	120	144	182	192	240	288	384	6	117	162	203	244	308	323	406	487	650
5	42	58	72	87	110	116	145	174	232	6	85	119	148	178	226	238	297	356	475	8	158	219	274	329	417	438	548	658	877
6	52	72	90	108	136	144	180	216	288	8	114	159	198	238	301	317	396	476	634	10	203	282	353	423	536	564	705	846	1128
8	70	98	122	147	186	196	245	294	392	10	147	204	255	306	388	408	510	612	816	36x4	87	121	151	181	229	242	302	363	483
10	90	125	156	187	237	250	312	375	500	21x4	59	82	103	123	157	165	206	248	330	5	114	159	198	238	301	317	396	476	634
16x4	38	53	66	79	101	106	133	159	212	5	77	107	133	161	203	214	267	321	427	6	141	195	245	293	372	391	490	587	783
5	50	69	86	104	132	139	173	208	278	6	95	132	165	198	251	264	330	396	528	8	190	264	330	396	502	527	660	792	1055
6	62	85	107	128	163	171	214	257	343	8	128	178	222	267	338	355	444	533	712	10	244	339	423	508	643	677	847	1015	1355
8	83	115	144	173	219	231	288	346	462	10	164	227	285	342	433	456	570	684	911										
10	107	148	186	223	282	297	372	446	595	26x4	63	87	109	131	166	175	219	262	350										

Nos. 311, 321 or 271 "Fabricated" Wall Grilles

8x6	33	46	58	69	88	92	116	139	185	18x5	63	87	109	131	166	175	218	262	350	26x8	151	210	262	313	399	420	525	630	840
10x4	26	37	46	55	70	74	92	110	147	6	78	108	135	162	205	216	270	324	432	10	182	253	316	379	480	505	632	758	1010
5	34	47	59	71	90	95	118	142	190	8	105	146	182	219	277	292	365	437	583	28x4	77	107	133	160	203	214	268	321	428
6	42	58	72	87	110	116	145	174	232	10	132	183	229	275	349	367	459	551	735	5	100	139	174	209	265	279	349	419	558
8	56	78	97	117	148	156	195	234	312	20x4	55	76	95	114	145	152	191	230	306	6	121	168	210	252	319	336	420	504	672
12x4	32	44	55	67	85	89	111	134	178	5	70	98	122	146	186	196	244	294	391	8	163	226	283	340	430	453	566	680	905
5	41	57	72	86	109	115	144	173	230	6	86	119	149	179	227	239	298	358	477	10	205	285	356	427	541	570	712	854	1140
6	50	70	88	105	133	140	176	211	281	8	116	161	201	241	306	322	402	483	644	30x4	83	115	144	173	219	231	288	346	462
8	68	94	118	141	179	189	236	283	377	10	145	202	252	303	383	404	505	606	808	5	107	148	186	223	282	297	372	446	595
9	76	106	132	159	201	212	265	318	424	22x4	60	83	104	122	159	167	209	251	335	6	130	181	226	272	342	362	452	544	725
10	85	119	148	178	226	238	297	357	476	5	77	107	133	160	203	214	267	321	427	8	175	243	304	365	462	487	608	730	973
14x4	38	52	66	79	100	105	132	158	211	6	95	132	165	198	251	264	330	396	528	10	220	303	383	459	582	613	765	919	1225
5	48	67	84	101	128	135	169	203	270	8	127	176	220	264	335	353	441	529	706	36x4	100	139	174	209	265	279	349	419	558
6	59	82	103	123	157	165	206	248	330	10	160	223	279	334	424	446	557	669	892	5	128	178	222	267	338	356	445	534	711
8	80	111	139	167	211	222	278	334	445	24x4	66	91	114	137	174	183	229	275	367	6	156	216	271	325	412	433	542	650	866
10	100	139	174	209	265	279	349	419	558	5	84	117	146	176	223	235	293	352	469	8	210	292	365	437	554	583	729	875	1165
5	56	77	97	116	147	155	194	233	311	8	139	194	242	291	368	388	484	582	775	10	264	366	458	550	696	733	916	1100	1465
6	68	94	118	141	179	189	236	283	377	10	175	243	303	364	461	485	607	728	971	5	163	226	283	340	430	453	566	680	905
8	93	129	161	193	245	258	323	387	517	26x4	65	91	113	136	173	182	227	273	364	6	199	276	346	415	525	553	691	830	1105
10	117	162	203	244	309	325	406	487	650	5	91	127	159	191	242	254	318	382	500	8	268	372	465	558	707	745	930	1117	1490
18x4	48	66	83	100	126	133	166	200	266	6	111	154	193	231	293	308	385	462	616	10	338	470	587	704	893	939	1178	1412	1883

Nos. 312 or 322 "Fabricated" Wall Grilles

8x6	34	47	59	71	90	95	118	142	190	18x4	50	69	86	104	132	139	173	208	278	26x5	95	132	165	199	252	265	332	398	531	
10x4	27	37	46	56	71	75	93	112	150	5	65	90	112	135	171	180	225	270	360	6	117	162	203	244	309	325	406	487	650	
5	35	48	60	73	92	97	121	146	194	6	79	109	136	164	208	219	274	328	437	8	161	223	279	335	425	447	559	672	894	
6	43	60	75	91	115	121	151	182	243	8	108	150	187	224	284	299	374	449	599	10	204	283	354	425	538	567	708	850	1135	
8	58	80	100	120	153	161	201	241	322	10	138	192	240	288	364	383	479	575	766	28x4	80	111	139	167	211	222	278	334	445	
12x4	33	46	58	69	88	92	116	139	185	20x4	56	77	97	116	147	155	194	233	311	28x4	103	147	179	215	272	359	431	557	715	
5	42	58	72	87	110	116	145	174	232	5	72	100	125	150	190	200	250	300	400	6	126	175	219	262	332	350	437	525	700	
6	52	72	90	108	136	144	180	216	288	6	88	123	153	184	233	246	307	369	492	8	173	240	300	360	456	480	600	720	960	
8	71	99	121	149	188	198	218	298	397	8	121	168	210	252	319	336	420	504	672	10	220	306	383	459	582	613	765	919	1225	
9	81	112	140	169	214	225	281	338	450	10	154	214	267	321	407	428	535	642	856	30x4	87	121	151	181	229	242	302	363	483	
10	90	125	157	188	239	251	311	377	503	22x4	62	86	108	129	164	172	215	258	345	5	111	154	193	231	293	380	385	462	616	
14x1	39	55	68	82	101	109	137	164	219	5	80	111	139	167	211	222	278	334	445	6	137	190	238	285	361	381	476	571	761	
5	50	69	87	104	132	139	171	209	279	6	97	135	168	202	256	270	337	405	540	8	188	261	326	391	496	522	653	783	1042	
6	61	84	106	127	161	169	212	254	339	8	133	184	231	277	351	369	462	554	738	10	238	331	413	496	627	661	826	992	1320	
8	81	116	146	182	235	235	293	352	469	10	170	236	295	354	448	473	590	708	944	36x4	104	144	180	217	275	289	362	434	578	
10	106	147	183	221	280	284	353	424	589	24x4	68	94	118	141	179	189	236	283	377	5	137	190	238	285	361	381	476	571	761	
16x4	44	61	76	91	116	122	155	188	249	5	88	123	153	184	233	246	307	369	492	6	168	233	291	350	443	467	583	700	933	
5	57	79	99	118	150	158	198	237	316	6	108	150	187	224	284	299	374	449	599	8	230	319	399	447	606	638	798	957	1275	
6	70	98	122	146	186	196	244	294	391	8	148	205	257	308	390	411	514	616	822	10	286	397	497	596	755	794	993	1190	1585	
8	96	133	167	200	253	267	334	401	534	10	188	261	326	392	496	522	653	784	1045											
10	122	169	211	254	321	338	423	507	676	26x4	74	103	128	154	195	205	257	308	411											



# Capacities

Based upon square feet of open (free) area, multiplied by air velocity.

Nos. 300 or 201 "Fabrikated" Wall Grilles

Grille Size	Open (Free) Area Sq.in.	Cubic Feet per Min. thru Grilles								Grille Size	Open (Free) Area Sq.in.	Cubic Feet per Min. thru Grilles								Grille Size	Open (Free) Area Sq.in.	Cubic Feet per Min. thru Grilles							
		F. P. M.										F. P. M.										F. P. M.							
		200	250	300	380	400	500	600	800			200	250	300	380	400	500	600	800			200	250	300	380	400	500	600	800
8x6	35	48	60	72	92	97	121	145	193	5	68	94	118	141	179	189	236	283	377	8	167	232	290	348	441	464	580	695	927
10x4	29	40	50	60	76	80	100	120	160	6	82	114	142	171	217	228	285	342	457	10	211	293	366	439	557	586	733	879	1170
5	37	51	64	77	97	103	128	154	206	8	116	161	201	242	306	322	403	484	645	28x4	84	117	146	176	223	235	293	352	469
6	45	63	79	94	120	126	158	189	253	10	146	203	253	304	385	405	506	608	811	5	108	150	187	224	284	299	374	449	599
8	62	86	107	129	164	172	216	259	345	20x4	59	82	100	120	153	161	201	242	322	6	131	182	227	273	346	364	455	546	727
12x4	35	48	60	73	92	97	121	146	194	5	76	106	132	159	202	212	265	319	425	8	180	250	312	375	475	500	625	750	1000
5	45	62	78	93	118	125	156	187	250	6	93	130	162	195	247	260	325	390	520	10	228	317	396	475	602	633	792	950	1265
6	55	76	95	114	145	153	191	230	306	8	128	177	222	266	337	355	444	532	710	30x4	90	124	155	187	237	249	311	374	498
8	75	104	130	157	198	209	261	314	418	10	162	225	281	337	427	450	562	675	900	5	116	161	202	242	307	323	404	485	647
10	85	118	148	177	225	237	296	355	474	22x4	65	90	112	135	171	180	225	270	360	6	141	196	246	295	373	393	492	590	786
14x4	41	57	71	85	108	114	142	171	228	5	84	117	146	176	223	235	293	352	469	8	193	269	336	403	511	537	672	807	1074
5	53	73	92	110	139	147	184	221	294	6	102	141	177	212	269	283	354	425	566	10	245	341	426	511	647	682	852	1022	1363
6	65	90	112	135	171	180	225	270	360	8	141	196	246	295	373	393	492	590	786	36x4	108	150	187	224	284	299	374	449	599
8	88	123	153	184	233	246	307	369	492	10	178	247	309	371	470	495	618	742	988	5	117	162	203	244	309	325	406	487	650
10	112	156	194	234	296	312	389	467	623	24x4	71	99	124	149	189	199	248	298	398	6	169	235	293	352	446	469	586	704	939
16x4	47	65	81	98	124	131	163	196	262	5	92	127	159	191	242	255	319	383	511	8	232	322	403	483	611	643	805	966	1285
5	61	84	115	126	160	169	211	254	338	6	112	156	195	234	296	312	390	468	625	10	294	408	510	612	775	816	1020	1220	1630
6	73	102	127	153	194	204	255	316	408	8	154	214	267	321	407	428	535	642	856	46x4	138	192	240	288	364	383	479	575	766
8	103	143	178	214	271	285	357	428	572	10	195	271	339	407	515	542	677	813	1083	5	178	247	309	371	470	494	618	742	988
10	130	181	226	271	344	362	453	543	724	26x4	77	107	133	160	203	214	268	321	428	6	216	300	375	450	570	600	750	900	1200
18x4	53	73	92	110	139	147	184	221	294	5	100	139	174	209	265	279	349	419	558	8	296	411	514	616	781	822	1035	1230	1640
										6	121	168	210	252	319	336	420	505	673	10	375	521	652	782	990	1040	1300	1560	2080

Nos. 137, 237 Wall Registers, Baseboard Registers, Baseboard Intakes, Wrought Steel Grilles

8x6	27	37	46	56	71	75	93	112	150	6	64	88	111	133	168	177	222	266	355	10	162	225	281	337	427	449	562	674	899
10x4	23	32	40	48	61	64	81	97	129	8	85	118	147	177	224	236	295	354	472	28x4	67	93	116	139	176	186	232	279	372
5	30	41	52	62	79	83	104	124	166	10	111	154	192	231	292	308	385	462	616	5	87	120	151	181	229	241	302	362	483
6	34	47	59	70	89	94	118	141	188	20x4	47	65	81	97	124	130	163	195	261	6	100	138	173	208	263	277	347	416	555
8	46	63	79	95	121	127	159	191	255	5	62	86	107	129	163	172	215	258	344	8	134	189	232	279	353	372	465	558	744
12x4	28	39	49	59	75	78	98	118	157	6	71	98	123	147	187	197	246	295	394	10	175	243	303	364	461	486	607	729	972
5	36	50	62	74	94	99	124	149	199	8	95	131	164	197	250	263	329	395	527	30x4	72	100	124	149	189	199	249	299	399
6	42	58	72	87	110	116	145	174	233	10	124	172	215	258	327	344	430	516	688	5	93	129	161	193	245	258	322	387	516
8	56	78	98	118	149	157	197	236	315	22x4	52	72	90	108	137	144	180	216	288	6	107	148	185	222	282	297	371	445	594
10	73	101	126	152	192	202	253	304	405	5	68	94	118	141	179	189	236	283	377	8	143	198	248	297	377	397	496	595	794
14x4	32	44	55	66	84	88	111	133	177	6	78	108	135	162	205	216	270	324	432	10	179	248	310	372	472	497	621	745	994
5	43	59	74	89	113	119	149	179	238	8	104	144	180	216	274	288	361	433	577	36x4	86	119	149	179	226	238	298	358	477
6	49	68	85	102	129	136	170	204	272	10	136	188	236	283	358	377	472	566	755	5	113	156	196	235	298	313	392	470	627
8	65	90	112	135	171	180	225	270	361	24x4	57	79	98	118	150	158	197	237	316	6	130	180	225	270	343	361	451	541	722
10	85	118	147	177	224	236	295	354	472	5	74	102	128	154	195	205	256	308	411	8	173	240	300	360	456	480	600	720	961
16x4	37	51	64	77	97	102	128	154	205	6	86	119	149	179	226	238	298	358	477	10	226	313	392	470	596	627	784	941	1255
5	49	68	85	102	129	136	170	204	272	8	114	158	197	237	300	316	395	474	633	46x4	110	152	190	229	290	305	389	458	611
6	56	78	98	118	149	157	197	236	315	10	149	206	258	310	393	413	517	620	827	5	144	200	249	299	380	399	499	599	799
8	75	104	130	156	197	208	260	312	416	26x4	62	86	107	129	163	172	215	258	344	6	166	230	288	345	438	461	576	691	922
10	98	136	170	204	258	272	340	408	544	5	81	112	140	168	213	224	281	337	449	8	222	308	385	462	585	616	770	922	1233
18x4	42	58	72	87	110	116	145	174	233	6	93	129	161	193	245	258	322	387	516	10	289	401	501	602	762	802	1003	1204	1605
5	55	76	95	114	145	152	190	229	305	8	124	172	215	258	327	344	430	516	688										



**Independent Registers**  
**and Grilles for Air**  
**Conditioning**



***I**n addition* to the registers and grilles shown in this catalogue, we manufacture a complete line of registers and faces for gravity furnace installations.

These are illustrated and described in a special catalogue, a copy of which we will be glad to send upon request.

**THE INDEPENDENT REGISTER CO.**  
**Cleveland, Ohio**



# INDEPENDENT

# REGISTERS



## ***VENTILATORS***

## ***GRILLES***

**THE INDEPENDENT REGISTER CO.**

*(Established 1898)*

3747 East 93rd Street

Cleveland, Ohio





# INDEPENDENT

## Registers • Ventilators • Grilles

We have been successfully manufacturing registers and grilles for thirty-nine years.

The extensive Independent line provides sizes, styles and types for practically all requirements.

### Finishes

Independent Registers are regularly made in a great variety of pleasing enameled, lacquered and plated finishes.

#### Semi-Finished

GPC.....Grey Priming Coat  
(Ready for Painting).  
MF.....Mill Finish (No Finish).

#### Japan

BJ.....Black Japan.  
WJ.....White Japan (Not suitable  
for use in the floor).

#### Imitation Oak Enamel

GO.....Medium Dark with Dis-  
tinct Graining.  
MLO.....Medium Light with Fine  
Graining.  
DO.....Dark Oak, Medium Grain-  
ing.

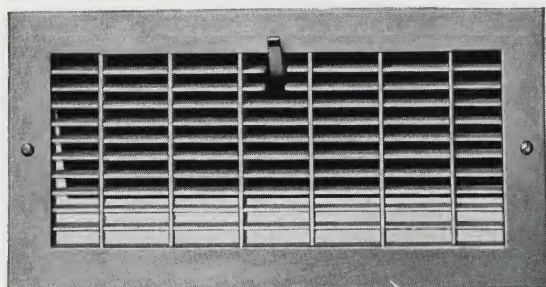
#### Lacquer

Ox. Cop. L.....Imitation Oxidized Copper  
Plating.  
ABL.....Antique Bronze.  
BrL.....Brass.  
DBL.....Dark Bronze.  
IvL.....Ivory, Egg Shell Finish.

#### Electro Plated

Ox. Cop. Pl.....Oxidized Copper.  
N. Pl.....Nickel.  
Br. Br. Pl.....Brush Brass.  
Brass Pl.....Bright Brass.  
Bz. Pl.....Bronze (Light).  
Sta. Bz. Pl.....Statuary Bronze (Dark).  
Chr. Pl.....Chromium.  
Cad. Pl.....Cadmium.

*Please Note: This Catalog Does Not Show Our Complete Line of  
Forced Air and Air Conditioning Registers and Grilles.*



We issue a special and very complete Catalogue showing registers and grilles designed especially for forced air and air-conditioned installations which will be sent upon request.

TELEPHONES: { Michigan 6150  
" 6151  
" 6152

**THE INDEPENDENT REGISTER CO.**  
3747 East 93rd Street • Cleveland, Ohio



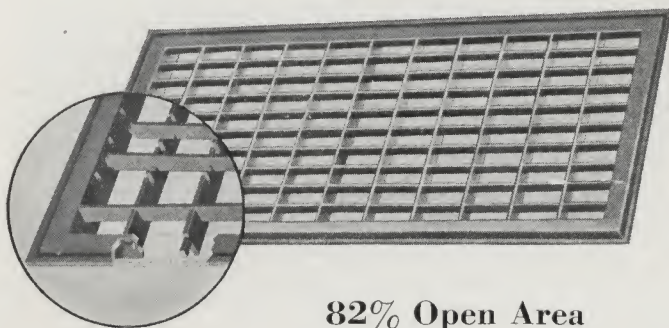
---

---

# INDEPENDENT "Fabrikated"

REG. U. S. PAT. OFFICE

## Registers • Cold Air Faces • Grilles



**82% Open Area**

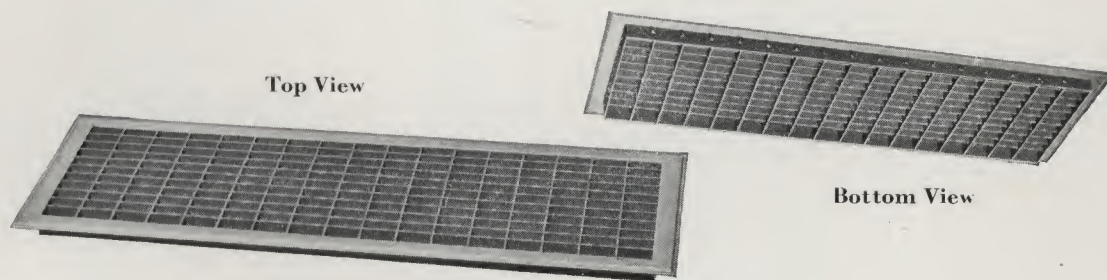
When we first introduced Independent "Fabrikated" Register Faces over twenty years ago, heating and ventilating men thought our claims of strength and rigidity were much overdrawn.

They found, however, that this construction had set an entirely new and higher standard, not only of strength but of greater open area.

"Fabrikated" Face construction differs from others. The steel outer frame is welded to form a solid piece and the interior is made up of steel strips set on edge, the same as girders of a bridge.

The interior grille is forced together under heavy pressure, making it substantially one piece. The ends of the grille are clinched outside the frame so that each member is a sustaining unit.

The faces are straight; the intersecting joints are tight.



**Special Sizes—Can be furnished in any size.**

The "Fabrikated" construction obviates the necessity for special patterns or dies for each size and the delay in making them.

"Fabrikated" Registers, Faces and Grilles can be furnished not only in all standard sizes but in practically any size and finish desired.

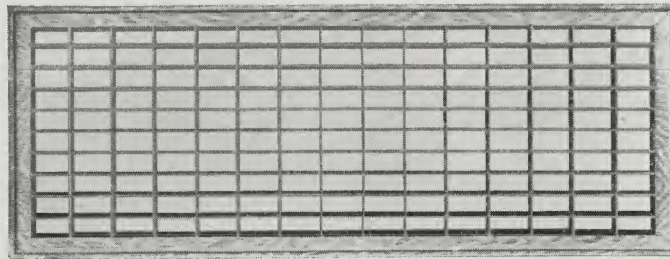
Open areas are shown on pages 4 and 6.



# Independent No. 130 "Fabrikated" Cold Air Faces

REG. U.S. PAT. OFFICE

82% OPEN AREA



**No. 130BE.** With beveled outer edges as illustrated above. The outer rims are approximately one inch wider, all four sides, than the floor opening size.

**No. 130SE.** With straight outer edges, rims approximately one-half inch wider, all four sides, than the floor opening size.

**No. 130FF.** With straight outer edges, rims one-quarter inch wider, all four sides, than floor opening size. For use where the face is to be rabbeted into the floor and to set flush with it.

For Round Pipes	Standard Package Quantity	Face Size Floor Opening Inches	Open Area Square Inches	LIST PRICES			
				Black Japan or Prime Coat	Im. Oak or Lacquer Finishes	Ox. Cop., Brass, Bronze, or Nickel	Electro Plated Chromium or Sanded Finishes
<b>10-inch pipe</b> Capacity of pipe 78 square inches	12	10x10	82	\$1.60	\$1.80	\$2.40	\$3.20
	12	10x12	99	1.70	1.90	2.55	3.40
<b>12-inch pipe</b> Capacity of pipe 113 square inches	12	12x12	118	2.20	2.45	3.30	4.40
	12	12x14	139	2.50	2.80	3.75	5.00
	12	6x24	118	3.00	3.35	4.50	6.00
	12	6x30	148	3.40	3.80	5.10	6.80
<b>14-inch pipe</b> Capacity of pipe 154 square inches	12	14x14	163	2.90	3.25	4.35	5.80
	12	14x16	187	3.10	3.45	4.65	6.20
	12	12x18	180	3.00	3.35	4.50	6.00
	12	8x24	159	3.20	3.60	4.80	6.40
	12	9x24	180	3.30	3.70	4.95	6.60
	12	7x30	174	3.50	3.90	5.25	7.00
<b>16-inch pipe</b> Capacity of pipe 201 square inches	12	16x16	215	3.60	4.05	5.40	7.20
	12	14x18	208	3.40	3.80	5.10	6.80
	12	14x20	229	3.70	4.15	5.55	7.40
	12	10x24	201	3.40	3.80	5.10	6.80
	12	12x24	238	3.75	4.20	5.65	7.50
	12	8x30	201	3.60	4.05	5.40	7.20
	12	9x30	226	3.70	4.15	5.55	7.40
<b>18-inch pipe</b> Capacity of pipe 254 square inches	12	18x18	273	4.20	4.70	6.30	8.40
	12	16x20	264	4.00	4.50	6.00	8.00
	12	14x24	282	4.10	4.60	6.15	8.20
	12	10x30	254	3.75	4.20	5.65	7.50
	12	12x30	301	4.00	4.50	6.00	8.00
<b>20-inch pipe</b> Capacity of pipe 314 square inches	12	20x20	337	5.00	5.60	7.50	10.00
	12	16x24	323	4.40	4.95	6.60	8.80
	12	18x24	365	4.80	5.40	7.20	9.60
	12	14x30	354	4.60	5.15	6.90	9.20
<b>22-inch pipe</b> Capacity of pipe 380 square inches	6	22x22	410	6.00	6.70	9.00	12.00
	12	20x24	404	5.40	6.05	8.10	10.80
	12	16x30	407	5.50	6.15	8.25	11.00
<b>24-inch pipe</b> Capacity of pipe 452 square inches	6	24x24	488	7.00	7.85	10.50	14.00
	12	18x30	456	6.10	6.85	9.15	12.20
	12	20x30	508	6.70	7.50	10.05	13.40
<b>26-inch pipe</b> Capacity of pipe 530 square inches	6	26x26	573	8.70	9.75	13.05	17.40
	6	22x30	561	7.70	8.60	11.55	15.40
	6	24x30	613	8.80	9.85	13.20	17.60

Additional Sizes can be furnished. List prices of standard sizes are shown on page 13.



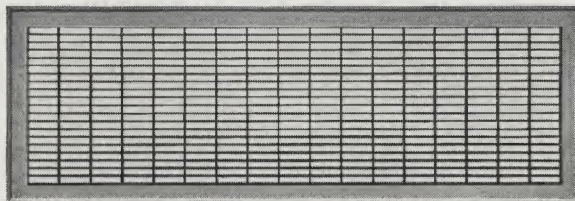
---

## Independent No. 131 "Fabrikated" Register Faces

REG. U.S. PAT. OFFICE

### Close Mesh Pattern

Open areas are shown on page 6.



List prices, faces: pages 4 and 13. Registers, pages 8 and 12.

**No. 131BE:** With beveled outer edges, as illustrated.

**No. 131SE:** With straight outer edges, rims approximately one-half inch wider, all four sides, than the floor opening size.

**No. 131FF:** Outer edges not beveled, rims one-quarter inch wider, all four sides, than floor opening size.



ACTUAL SIZE OF OPENINGS

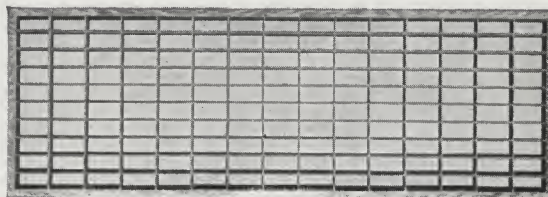
The No. 131 Close Mesh "Fabrikated" in the larger sizes is made with openings  $\frac{3}{8} \times 1\frac{7}{8}$  inches, in the smaller sizes  $\frac{3}{8} \times 1\frac{11}{16}$  inches (approximate).

Can also be supplied as Complete Registers with Multiple Valves; see page 8.

## "Fabrikated" Faces — Floor Flush Pattern

REG. U.S. PAT. OFFICE

### 82% Open Area



No. 130FF

Made for use where the face is to be rabbeted into the floor and to set flush with it.

The outer rims are narrower than usual, being one-quarter inch wider, all four sides, than the floor opening size. Any size or style of "Fabrikated" can be supplied. List prices, pages 4 and 13.



# Independent "Fabrikated" Faces—Open Areas

REG. U.S. PAT. OFFICE

This table shows the approximate actual open (free) areas in square inches of the "Fabrikated" Faces as illustrated on pages 3, 4 and 5. List prices, pages 4 and 13.

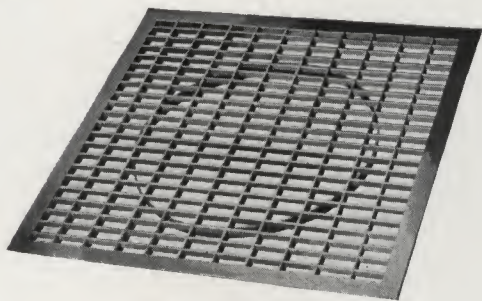
Floor Opening Size Inches	No. 130 Open Area Square Inches	No. 131 Open Area Square Inches	Floor Opening Size Inches	No. 130 Open Area Square Inches	No. 131 Open Area Square Inches	Floor Opening Size Inches	No. 130 Open Area Square Inches	No. 131 Open Area Square Inches	Floor Opening Size Inches	No. 130 Open Area Square Inches	No. 131 Open Area Square Inches
4 x6	18	16	9x17	127	112	15x25	315	283	22x36	674	618
4x 8	24	21	9x18	134	120	15x30	381	342	22x38	672	652
4x10	31	28	9x20	150	135	15x34	432	388	22x40	708	686
4x12	37	33	9x22	164	148				22x42	743	721
4x13	40	35	9x24	180	162	16x16	215	193	22x46	820	789
4x15	47	41	9x30	226	203	16x18	242	217			
4x18	57	50	9x36	272	245	16x20	264	241	24x24	488	438
4x21	66	58				16x22	297	267	24x26	529	474
4x24	75	67	10x10	82	74	16x24	323	292	24x27	550	492
4x30	95	85	10x12	99	89	16x26	351	316	24x28	571	511
4x32	101	89	10x14	116	104	16x28	379	342	24x30	613	547
			10x15	125	111	16x30	407	365	24x32	654	584
5x 8	31	27	10x16	133	119	16x32	433	388	24x36	737	674
5x 9	35	31	10x18	150	135	16x36	489	438	24x40	773	749
5x10	39	35	10x20	167	150	16x40	512	487	24x42	812	786
			10x24	201	180	16x42	538	510	24x45	871	842
6x 6	28	24	10x30	254	226				24x48	928	899
6x 8	38	33	10x36	302	271	18x18	273	245			
6x 9	43	37	10x40	316	300	18x20	304	272	26x26	573	527
6x10	48	42				18x21	319	286	26x28	617	568
6x12	58	51	11x30	278	248	18x22	335	299	26x30	663	608
6x14	68	60				18x24	365	328	26x32	707	649
6x16	78	69	12x12	118	107	18x27	411	368	26x34	752	690
6x18	88	77	12x14	139	125	18x28	426	383	26x36	796	730
6x20	98	87	12x15	151	134	18x30	456	409			
6x22	108	96	12x16	160	147	18x34	520	465	27x27	583	569
6x24	118	105	12x17	170	152	18x36	550	493	27x38	825	800
6x28	137	122	12x18	180	161	18x40	577	555			
6x30	148	131	12x20	201	179				28x28	630	612
6x36	176	161	12x22	220	197	20x20	337	300	28x30	676	655
			12x24	240	214	20x22	371	330	28x32	721	699
7x 7	40	34	12x26	261	232	20x24	404	360	28x34	767	743
7x10	56	48	12x28	281	250	20x26	439	390	28x36	812	786
7x12	68	59	12x30	301	271	20x28	473	420	28x40	903	874
7x14	80	68	12x36	363	328	20x30	508	450			
7x15	86	74	12x40	382	365	20x32	542	493	30x30	725	702
7x30	174	155	12x48	458	438	20x34	577	524	30x32	773	749
						20x36	611	554	30x34	822	796
8x 8	51	46	13x30	328	296	20x38	642	584	30x36	871	842
8x10	65	58				20x40	678	616	30x40	968	936
8x12	78	69	14x14	163	146	20x44	709	678	30x42	1017	983
8x14	92	82	14x16	187	167				30x48	1163	1123
8x15	99	87	14x18	208	187	21x21	372	331			
8x16	105	94	14x20	229	211	21x25	443	394	32x32	825	799
8x18	119	106	14x22	259	232	21x29	515	457			
8x20	133	119	14x24	282	253	21x33	589	520	34x34	932	902
8x24	159	142	14x26	306	273	21x37	659	598			
8x30	201	179	14x28	328	294	21x39	696	631	36x36	1047	1011
8x36	240	215	14x30	354	317				36x40	1164	1123
			14x32	378	340	22x22	410	368	36x42	1222	1179
9x 9	66	59	14x36	425	382	22x24	446	401	36x48	1398	1348
9x12	88	79	14x40	447	424	22x26	484	435			
9x14	104	92	14x48	537	510	22x28	522	468	38x38	1167	1126
9x15	112	98				22x30	561	502	38x40	1229	1186
9x16	119	105	15x15	196	170	22x32	597	549	38x42	1291	1245
			15x21	265	237	22x34	634	583	40x40	1294	1248



# Independent "Fabrikated" Pipeless Furnace Gratings

REG. U.S. PAT. OFFICE

## 82% Open Area



No. 130PG

Rigidity, unquestionable strength and freedom from breakage are essentials with Pipeless Gratings.

Large open area to permit the unrestricted circulation of both warm and return air is necessary to secure the maximum heating and circulation results.

The "Fabrikated" construction makes the ideal Pipeless Grating because it embodies all of these features.

Further, because of the large open area, smaller sizes may be used, thus reducing the floor space required.

Size of Grating (Floor Opening) Inches	Collar to Fit Warm Air Pipe Diameter Inches	Open Area Within Warm Air Pipe Collar Square Inches	Open Area Outside of Warm Air Pipe Collar (Cold Air Return) Square Inches	List Price Black Jappaned	List Price Im. Ox. Cop. (Enamel and Lacquer)	List Price Ox. Copper Plated
20x22	14	119	227	\$ 6.15	\$ 6.75	\$ 8.75
22x24	16	157	260	7.20	7.95	10.30
24x24	18	200	256	8.05	8.90	11.55
24x27	18	200	313	9.25	10.20	13.30
24x28	20	248	285	9.55	10.55	13.75
28x28	22	301	323	12.00	13.30	17.40
30x30	22	301	416	14.45	16.00	20.95
30x36	24	359	504	18.85	20.90	27.45
32x32	24	359	458	16.60	18.40	24.10
34x34	26	422	496	19.35	21.45	28.10
36x36	28	491	546	22.05	24.45	32.05
40x40	32	644	640	30.25	32.75	40.35
44x44	34	727	830	37.60	40.10	47.70
44x48	36	817	883	41.00	43.50	51.10
48x48	38	911	945	43.25	46.50	59.60

The sizes of the Collars may be changed to suit the requirements of the purchaser.

Additional Sizes: "Fabrikated" can be furnished to order in any size or finish.

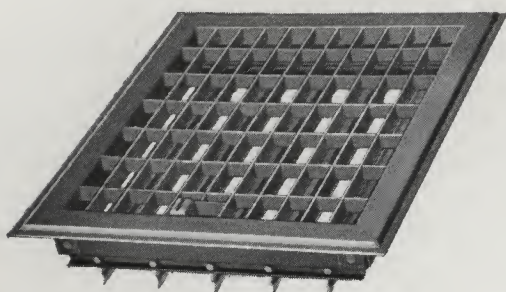
Close Mesh Pattern: "Fabrikated" Pipeless Gratings can also be supplied, at advanced prices, with narrow openings as described on page 5. If the Close Mesh Pattern is desired, order No. 131PG.



# Independent "Fabrikated" Floor Registers

REG. U.S. PAT. OFFICE

## With Multiple Valves



**STANDARD "FABRIKATED"**

Face openings,  $\frac{3}{4} \times 1\frac{1}{8}$  inch (approximate)

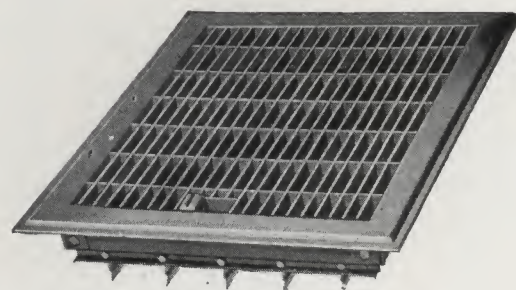
It does not take a second look to reveal their strength and most excellent finish. They excel by a wide margin in rigidity, greater open area and fine appearance.

**No. 30BE:** With beveled outer edges as illustrated above; outer rims approximately  $\frac{7}{8}$  inch wider, all four sides, than the floor opening size.

**No. 30SE:** With outer edges straight; same  $\frac{3}{8}$  inch.

**No. 30FF:** Floor flush, with outer rims one-quarter inch wider, all four sides, than floor opening size.

**Floor face only** with lever slot for attaching to register bottom: **No. 030.**



**CLOSE MESH "FABRIKATED"**

Face openings,  $\frac{3}{8} \times 1\frac{1}{8}$  inch (approximate)

The Close Mesh "Fabrikated" differs from the Standard "Fabrikated" in that the openings in the faces are narrower.

### Close Mesh:

**No. 31BE:** With beveled outer edges, dimensions as above.

**No. 31SE:** With outer edges straight, dimensions as above.

**No. 31FF:** With outer rims one-quarter inch wider, all four sides, than floor opening size.

**Floor face only** with lever slot for attaching to register bottom: **No. 031.**

Standard Package Quantity Each Register in a Separate Carton	Floor Opening Size Inches	Open Area Sq. In. Standard "Fabrikated" No. 30	Open Area Sq. In. Close Mesh "Fabrikated" No. 31	Black Japan or Prime Coat	Im. Oak or Lacquer Finishes or White Japan	ELECTRO PLATED	
						Oxidized Copper, Nickel, Brass or Bronze	Chromium or Sanded Finishes
10	8x10	62	55	\$ 1.70	\$ 1.85	\$ 2.25	\$ 2.80
10	8x12	75	67	1.90	2.05	2.55	3.20
10	9x12	85	76	2.15	2.35	2.90	3.65
8	10x12	95	85	2.40	2.60	3.25	4.10
8	10x14	112	100	3.40	3.65	4.40	5.40
6	12x14	134	121	4.25	4.55	5.50	6.75
6	12x15	144	131	4.75	5.05	6.05	7.35
4	14x14	159	142	5.65	6.00	7.10	8.55
4	14x16	182	163	6.85	7.20	8.40	9.95

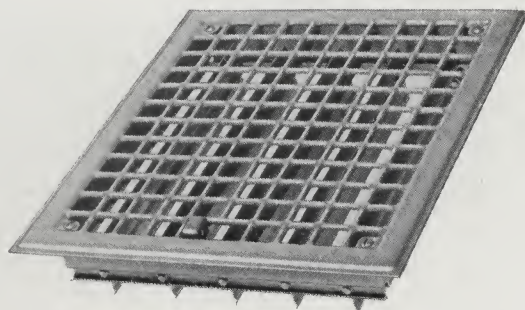
**Additional Sizes:** Other sizes can be supplied. Standard list prices, page 12.

**For Use in the Wall:** "Fabrikated" registers as shown on this page, especially constructed for installation in the wall, may be had by specifying Style W.



# Independent No. 20 Wrought Steel Registers

## With Multiple Valves



The faces are made with beveled edges.

For use in the floor in furnace installations and equally suitable for use in the wall or ceiling or for any purpose where multiple valve registers are desired.

The faces are made of sheet steel, the cross bars between perforations being corrugated downward to secure strength, the outer edges embossed for rigidity and appearance.

The sides of the register bottoms are beveled to aid in easy installation.

On all sizes of registers 8x10 and larger, the faces are supported by reinforcing bars.

### No. 20

#### LIST PRICES OF REGISTERS COMPLETE WITH VALVES

Standard Package Quantity Each Register in a Separate Carton	Floor Opening Size Inches	Black Japan or Prime Coat	White Japan or Im. Oak or Lacquer Finishes	ELECTRO PLATED	
				Ox. Copper, Bronze, Nickel, or Brass	Chro- mium or Sanded Finishes
16	6x8	\$1.55	\$1.65	\$2.00	\$2.45
16	6x10	1.60	1.70	2.10	2.60
10	8x10	1.70	1.85	2.25	2.80
10	8x12	1.90	2.05	2.55	3.20
10	9x12	2.15	2.35	2.90	3.65
8	10x12	2.40	2.60	3.25	4.10
8	10x14	3.40	3.65	4.40	5.40
6	12x14	4.25	4.55	5.50	6.75
6	12x15	4.75	5.05	6.05	7.35
4	14x16	6.85	7.20	8.40	9.95
4	14x18	8.10	8.50	9.80	11.50

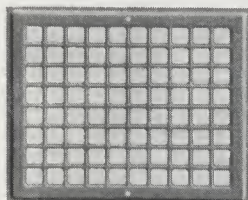
#### LIST PRICES OF REGISTER FACES ONLY—Two Styles—See Below

Size of Opening Inches	Black Japan or Prime Coat	White Japan or Im. Oak or Lacquer Finishes	ELECTRO PLATED	
			Ox. Copper, Bronze, Nickel, or Brass	Chro- mium or Sanded Finishes
6x8	\$ .90	\$1.00	\$1.35	\$1.80
6x10	1.00	1.10	1.50	2.00
8x10	1.10	1.25	1.65	2.20
8x12	1.30	1.45	1.95	2.60
9x12	1.50	1.70	2.25	3.00
10x12	1.70	1.90	2.55	3.40
10x14	2.00	2.25	3.00	4.00
12x14	2.50	2.80	3.75	5.00
12x15	2.60	2.90	3.90	5.20
14x16	3.10	3.45	4.65	6.20
14x18	3.40	3.80	5.10	6.80

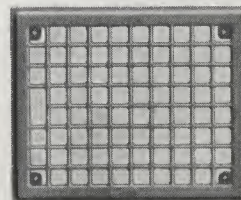
**Additional Sizes:** Other sizes can be supplied. List prices are shown on pages 12 and 13.

Register Faces are made in two styles:

**No. 20G.** As a Grille, without end lever slot or corner screw holes and with screw holes in outer rims, for use in the ceiling or wall as illustrated below.



In ordering,  
the style  
desired should  
be specified.

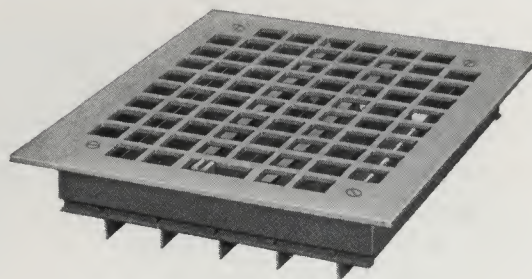


**No. 20F.** As a Register Face, with lever slot and corner screw holes for attaching to a register bottom, as illustrated below.



# Independent No. 12-75 Wrought Steel Registers

Extra Heavy — With Multiple Valves



The faces are made with square edges.

For use in the floor in furnace installations and equally suitable for use in the wall or ceiling, or for any purpose where multiple valve registers are desired.

The faces are made from No. 12 gauge sheet steel with perforations  $\frac{3}{4} \times \frac{3}{4}$  inch, the crossbars  $\frac{1}{4}$  inch in width. They differ from many others in that they are made from heavier metal.

Closely approaching cast iron in general appearance, they retain the advantages of steel over cast iron in freedom from breakage, greater open area, moderate weight and perfection of finish.

The sides of the register bottom are beveled to aid in easy installation, and if for use in the floor, the faces of the register are supported by reinforcing bars.

## No. 12-75

### LIST PRICES OF REGISTERS COMPLETE WITH VALVES

Standard Package Quantity Each Register in a Separate Carton	Floor Opening Size Inches	Black Japan or Prime Coat	White Japan Im. Oak or Lacquer Finishes	ELECTRO PLATED	
				Ox. Copper, Bronze, Nickel or Brass	Chro- mium or Sanded Finishes
16	6x8	\$1.55	\$1.65	\$2.00	\$2.45
16	6x10	1.60	1.70	2.10	2.60
10	8x10	1.70	1.85	2.25	2.80
10	8x12	1.90	2.05	2.55	3.20
10	9x12	2.15	2.35	2.90	3.65
8	10x12	2.40	2.60	3.25	4.10
8	10x14	3.40	3.65	4.40	5.40
6	12x14	4.25	4.55	5.50	6.75
6	12x15	4.75	5.05	6.05	7.35
4	14x16	6.85	7.20	8.40	9.95
4	14x18	8.10	8.50	9.80	11.50

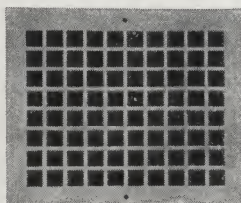
### LIST PRICES OF REGISTER FACES ONLY—Two Styles—See Below

Size of Opening Inches	Black Japan or Prime Coat	White Japan Im. Oak or Lacquer Finishes	ELECTRO PLATED	
			Ox. Copper, Bronze, Nickel or Brass	Chro- mium or Sanded Finishes
6x8	\$ .90	\$1.00	\$1.35	\$1.80
6x10	1.00	1.10	1.50	2.00
8x10	1.10	1.25	1.65	2.20
8x12	1.30	1.45	1.95	2.60
9x12	1.50	1.70	2.25	3.00
10x12	1.70	1.90	2.55	3.40
10x14	2.00	2.25	3.00	4.00
12x14	2.50	2.80	3.75	5.00
12x15	2.60	2.90	3.90	5.20
14x16	3.10	3.45	4.65	6.20
14x18	3.40	3.80	5.10	6.80

Additional Sizes: Other sizes can be supplied. List prices are shown on pages 12 and 13.

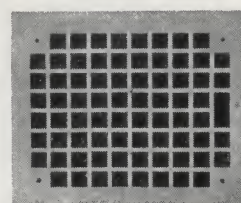
Register Faces are made in two styles:

**No. 12-75G.** As a Grille, without end lever slot or corner screw holes and with screw holes in outer rims, for use in the ceiling or wall as illustrated below.



In ordering,  
the style  
desired should  
be specified.

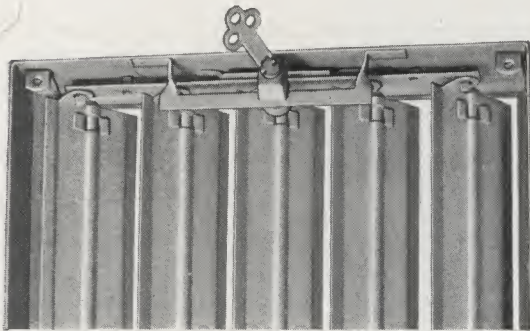
**No. 12-75F.** As a Register Face, with lever slot and corner screw holes for attaching to a register bottom as illustrated below.





## Independent Lock Registers

### Style LL

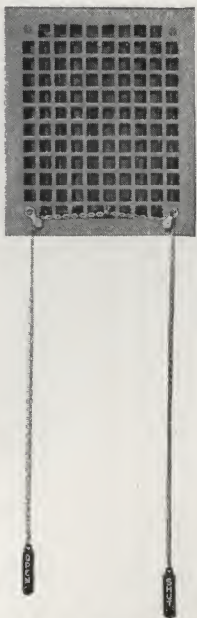


Any of the multiple valve registers shown on the previous pages can be supplied, to order, with lock attachments. The registers are operated in the usual manner, but the valves can be locked in any position with a removable key.

Add \$1.25 list price each to the standard list prices on page 12.

In ordering, specify the number of register desired, adding the designation Style LL.

No. 12-75 registers are usually preferred for use with the lock attachment.



## Independent Registers With Pulleys

### For Use In the Wall or Ceiling

#### For Operation by Cord or Chain

Multiple valve registers, if used in the wall or ceiling out of reach from the floor, can be operated by chain or cord, if equipped with pulleys.

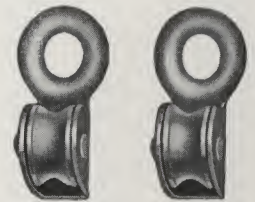
In ordering, state whether for use in the ceiling or side wall.

List Price of pulleys, per set of two, \$.50 for registers smaller than 14x14; \$1.00 list price for register sizes 14x14 and larger.

#### "Open and Shut" Indicator Handles for the Ends of the Chain or Cord



For use in the side wall



For use in the ceiling

Black or White Japan or Lacquer Finishes.....	Net Prices per set of two .....	\$0.10
Plated Finishes.....	" " " " " " .....	.15
Cord, per yard, net.....	.....	.03
No. 00 Plated Safety Chain.....	.....per yard, net .....	.06
No. 10 Nickel Silver Bead Chain.....	.....per yard, net .....	.15

Small metal pendants for the ends of bead chain are furnished without charge.

We recommend Bead Chain for best appearance.

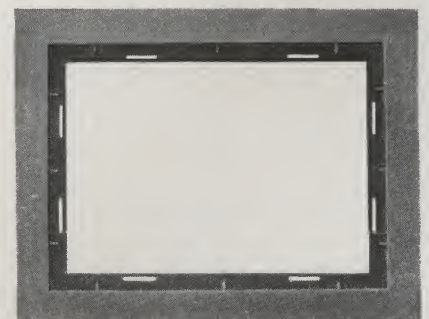
## Independent Steel Floor Borders

For use with "Fabrikated," No. 12-75 or No. 20 Registers and Faces

Borders can be furnished to fit any size of register or face, in any finish.

In ordering, the style of register or face with which the borders are to be used should be specified.

List Prices, page 13.





# List Prices — Independent Registers With Multiple Valves

Applying to Nos. 30 and 31 "Fabrikated," No. 12-75 or No. 20 Wrought Steel Registers

With valves the long way of the register: valves the short way of the register can be furnished at an additional charge, the price depending upon the quantity.

SIZE (To Fit Opening) Inches	Black Japan, Prime Coat or Mill Finish	White Japan, Imitation Oak or Lacquered Finishes	ELECTROPLATED		SIZE (To Fit Opening) Inches	Black Japan, Prime Coat or Mill Finish	White Japan, Imitation Oak or Lacquered Finishes	ELECTROPLATED		SIZE (To Fit Opening) Inches	Black Japan, Prime Coat or Mill Finish	White Japan, Imitation Oak or Lacquered Finishes	ELECTROPLATED	
			Ox. Copper, Nickel, Brass or Bronze	Chromium or Sanded Finishes				Ox. Copper, Nickel, Brass or Bronze	Chromium or Sanded Finishes				Ox. Copper, Nickel, Brass or Bronze	Chromium or Sanded Finishes
4x6	\$1.35	\$1.45	\$1.70	\$2.05	10x18	5.55	5.85	6.90	8.25	20x30	24.05	24.85	27.40	30.75
4x8	1.45	1.55	1.85	2.25	10x20	6.70	7.05	8.20	9.70	20x32	26.30	27.20	30.10	33.90
4x10	1.55	1.65	2.00	2.45	10x22	7.85	8.25	9.50	11.15	20x34	28.55	29.55	32.80	37.05
4x12	1.70	1.85	2.25	2.80	10x24	8.65	9.05	10.35	12.05	20x36	30.40	31.50	34.90	39.40
4x14	2.25	2.40	2.95	3.65	10x30	11.30	11.75	13.20	15.05	20x40	34.45	35.70	39.70	44.95
4x15	2.60	2.80	3.40	4.20	10x36	15.20	15.85	17.95	20.70	20x44	39.85	41.45	46.60	53.35
4x18	3.50	3.75	4.55	5.55	10x40	17.75	18.55	21.05	24.35	20x48	43.85	45.65	51.35	58.85
4x24	5.20	5.55	6.60	8.00										
4x30	6.65	7.05	8.25	9.85	12x12	3.60	3.85	4.70	5.80	22x22	19.80	20.50	22.80	25.80
4x32	7.55	8.00	9.45	11.35	12x14	4.25	4.55	5.50	6.75	22x24	21.60	22.35	24.70	27.80
					12x15	4.75	5.05	6.05	7.35	22x26	23.50	24.30	26.85	30.20
5x8	1.50	1.60	1.95	2.35	12x16	5.25	5.55	6.60	7.95	22x28	25.65	26.55	29.30	32.95
5x9	1.55	1.65	2.00	2.45	12x18	6.45	6.80	7.95	9.45	22x30	27.65	28.55	31.50	35.35
5x10	1.60	1.70	2.10	2.55	12x20	7.55	7.95	9.20	10.85	22x32	30.05	31.10	34.40	38.75
5x12	1.75	1.90	2.35	2.90	12x22	8.80	9.25	10.60	12.40	22x34	32.50	33.70	37.40	42.30
5x14	2.45	2.65	3.20	3.95	12x24	9.75	10.20	11.65	13.50	22x36	34.65	35.90	39.90	45.15
5x16	3.15	3.35	4.05	4.95	12x26	10.65	11.10	12.60	14.50	22x38	37.15	38.55	42.95	48.75
5x18	3.90	4.15	5.00	6.05	12x28	11.65	12.10	13.65	15.60	22x40	39.25	40.75	45.40	51.55
					12x30	12.60	13.10	14.60	16.60	22x42	42.30	44.00	49.30	56.30
6x6	1.45	1.55	1.85	2.25	12x36	16.90	17.60	19.80	22.70	22x46	47.70	49.75	56.20	64.70
6x8	1.55	1.65	2.00	2.45	12x40	19.80	20.65	23.30	26.80					
6x9	1.60	1.70	2.10	2.55	12x48	24.75	25.85	29.25	33.75	24x24	24.30	25.15	27.80	31.30
6x10	1.60	1.70	2.10	2.60						24x26	26.75	27.65	30.60	34.45
6x12	1.80	1.95	2.40	3.00	14x14	5.65	6.00	7.10	8.55	24x28	28.00	28.95	32.05	36.10
6x14	2.55	2.75	3.35	4.10	14x16	6.85	7.20	8.40	9.95	24x28	29.15	30.15	33.35	37.55
6x16	3.40	3.65	4.35	5.30	14x18	8.10	8.50	9.80	11.50	24x30	31.15	32.20	35.55	39.95
6x18	4.15	4.40	5.25	6.35	14x20	9.35	9.80	11.20	13.05	24x32	33.75	34.95	38.75	43.75
6x20	4.95	5.25	6.20	7.45	14x22	10.55	11.00	12.50	14.45	24x36	38.60	40.05	44.60	50.60
6x24	6.30	6.65	7.80	9.30	14x24	11.60	12.10	13.65	15.70	24x40	43.40	45.10	50.40	57.40
6x30	8.25	8.65	9.95	11.65	14x26	12.85	13.35	15.00	17.15	24x42	46.60	48.50	54.60	62.60
6x36	11.00	11.60	13.45	15.90	14x28	13.95	14.50	16.20	18.45	24x45	50.85	53.00	59.85	68.85
					14x30	14.95	15.50	17.25	19.55	24x48	54.65	57.05	64.65	74.65
7x7	1.60	1.70	2.10	2.55	14x32	16.75	17.40	19.45	22.15					
7x9	1.60	1.70	2.10	2.60	14x36	19.60	20.40	22.85	26.10	26x26	29.60	30.65	33.95	38.30
7x10	1.65	1.80	2.20	2.70	14x36	19.60	20.40	22.85	26.10	26x28	32.05	33.20	36.85	41.65
7x12	1.90	2.05	2.55	3.15	14x40	22.60	23.50	26.45	30.30	26x30	34.40	35.60	39.50	44.60
7x14	2.80	3.00	3.60	4.40	14x48	28.35	29.55	33.35	38.35	26x32	36.80	38.15	42.45	48.10
7x15	3.25	3.45	4.15	5.05						26x34	39.50	41.00	45.75	52.00
7x30	9.45	9.85	11.20	12.95	16x16	8.65	9.10	10.45	12.25	26x36	42.10	43.75	48.90	55.70
					16x18	9.90	10.35	11.80	13.70					
8x8	1.60	1.70	2.10	2.60	16x20	11.15	11.65	13.15	15.15	27x27	32.40	33.50	36.90	41.40
8x10	1.70	1.85	2.25	2.80	16x22	12.50	13.00	14.60	16.70	27x38	46.45	48.30	54.25	62.05
8x12	1.90	2.05	2.55	3.20	16x24	13.70	14.25	15.90	18.10					
8x14	2.95	3.15	3.80	4.60	16x26	15.10	15.70	17.50	19.90	28x28	34.90	36.20	40.30	45.70
8x15	3.45	3.65	4.40	5.30	16x28	16.55	17.15	19.15	21.75	28x30	37.25	38.60	42.95	48.65
8x16	3.85	4.10	4.85	5.85	16x30	17.90	18.55	20.65	23.40	28x32	40.15	41.65	46.50	52.85
8x18	5.05	5.35	6.25	7.45	16x32	19.60	20.35	22.70	25.80	28x34	43.00	44.70	50.00	57.00
8x20	6.05	6.35	7.40	8.75	16x36	22.75	23.65	26.40	30.05	28x36	45.80	47.60	53.40	61.00
8x24	7.90	8.30	9.50	11.10	16x40	25.90	26.90	30.15	34.40	28x40	51.55	53.70	60.55	69.55
8x30	10.45	10.90	12.25	14.05	16x42	27.55	28.65	32.10	36.65					
8x36	14.05	14.65	16.65	19.25	18x18	11.90	12.40	14.00	16.10	30x30	41.15	42.70	47.65	54.15
					18x20	13.15	13.70	15.35	17.55	30x32	44.10	45.85	51.30	58.50
9x9	1.90	2.05	2.55	3.20	18x22	13.95	14.50	16.20	18.45	30x34	47.05	48.95	54.95	62.85
9x12	2.15	2.35	2.90	3.65	18x21	13.95	14.50	16.20	18.45	30x36	50.05	52.10	58.65	67.25
9x14	3.20	3.40	4.15	5.05	18x22	14.60	15.15	16.90	19.20	30x40	55.80	58.20	65.80	75.80
9x15	3.70	3.95	4.70	5.70	18x24	16.00	16.60	18.40	20.80	30x42	59.40	62.05	70.40	81.40
9x16	4.25	4.50	5.35	6.40	18x27	18.55	19.20	21.35	24.15	30x48	68.20	71.30	81.20	94.20
9x18	5.35	5.65	6.65	7.90	18x28	19.25	19.95	22.15	25.05					
9x20	6.35	6.70	7.80	9.20	18x30	20.80	21.55	23.85	26.90	32x32	47.00	48.80	54.50	62.00
9x22	7.40	7.80	9.00	10.60	18x34	24.55	25.45	28.35	32.15	34x34	53.55	55.65	62.30	71.05
9x24	8.20	8.60	9.85	11.50	18x36	26.10	27.05	30.10	34.10					
9x30	10.90	11.35	12.75	14.60	18x40	29.60	30.70	34.20	38.80	36x36	60.30	62.70	70.30	80.30
9x36	14.65	15.30	17.35	20.00	18x48	37.35	38.85	43.60	49.85	36x40	69.30	72.40	82.30	95.30
					20x20	15.30	15.90	17.80	20.30	36x42	72.00	75.25	85.50	99.00
10x10	2.25	2.45	3.05	3.85	20x22	16.90	17.50	19.50	22.10	36x48	81.90	85.75	97.90	113.90
10x12	2.40	2.60	3.25	4.10	20x24	18.55	19.20	21.25	23.95	38x38	69.30	72.40	82.30	95.30
10x14	3.40	3.65	4.40	5.40	20x26	20.45	21.15	23.40	26.35	38x40	72.00	75.25	85.50	99.00
10x15	3.95	4.20	5.05	6.15	20x28	22.40	23.15	25.60	28.80	38x42	77.40	81.00	92.40	107.40
10x16	4.50	4.80	5.65	6.80										



# List Prices — Independent Register Faces

Applying to Nos. 130 and 131 "Fabrikated," and Nos. 12-75G, 12-75F,  
20G and 20F Wrought Steel Faces

Floor Borders. These list prices also apply to Floor Borders shown on page 11.

SIZE (To Fit Opening) Inches	Black Japan, Prime Coat or Mill Finish	White Japan, Imitation Oak or Lacquered Finishes	ELECTROPLATED		SIZE (To Fit Opening) Inches	Black Japan, Prime Coat or Mill Finish	White Japan, Imitation Oak or Lacquered Finishes	ELECTROPLATED		SIZE (To Fit Opening) Inches	Black Japan, Prime Coat or Mill Finish	White Japan, Imitation Oak or Lacquered Finishes	ELECTROPLATED	
			Ox. Copper, Nickel, Brass or Bronze	Chromium or Sanded Finishes				Ox. Copper, Nickel, Brass or Bronze	Chromium or Sanded Finishes				Ox. Copper, Nickel, Brass or Bronze	Chromium or Sanded Finishes
4x6	\$ .70	\$ .80	\$1.05	\$1.40	10x18	2.70	3.00	4.05	5.40	20x30	6.70	7.50	10.05	13.40
4x8	.80	.90	1.20	1.60	10x20	3.00	3.35	4.50	6.00	20x32	7.60	8.50	11.40	15.20
4x10	.90	1.00	1.35	1.80	10x22	3.30	3.70	4.95	6.60	20x34	8.50	9.50	12.75	17.00
4x12	1.10	1.25	1.65	2.20	10x24	3.40	3.80	5.10	6.80	20x36	9.00	10.10	13.50	18.00
4x14	1.40	1.55	2.10	2.80	10x30	3.75	4.20	5.65	7.50	20x40	10.50	11.75	15.75	21.00
4x15	1.60	1.80	2.40	3.20	10x36	5.50	6.15	8.25	11.00	20x44	13.50	15.10	20.25	27.00
4x18	2.05	2.30	3.10	4.10	10x40	6.60	7.40	9.90	13.20	20x48	15.00	16.80	22.50	30.00
4x24	2.80	3.15	4.20	5.60										
4x30	3.20	3.60	4.80	6.40	12x12	2.20	2.45	3.30	4.40	22x22	6.00	6.70	9.00	12.00
4x32	3.80	4.25	5.70	7.60	12x14	2.50	2.80	3.75	5.00	22x24	6.20	6.95	9.30	12.40
					12x15	2.60	2.90	3.90	5.20	22x26	6.70	7.50	10.05	13.40
5x8	.85	.95	1.30	1.70	12x16	2.70	3.00	4.05	5.40	22x28	7.30	8.20	10.95	14.60
5x9	.90	1.00	1.35	1.80	12x18	3.00	3.35	4.50	6.00	22x30	7.70	8.60	11.55	15.40
5x10	.95	1.05	1.45	1.90	12x20	3.30	3.70	4.95	6.60	22x32	8.70	9.75	13.05	17.40
5x12	1.15	1.30	1.75	2.30	12x22	3.60	4.05	5.40	7.20	22x34	9.80	11.00	14.70	19.60
5x14	1.50	1.70	2.25	3.00	12x24	3.75	4.20	5.65	7.50	22x36	10.50	11.75	15.75	21.00
5x16	1.80	2.00	2.70	3.60	12x26	3.85	4.30	5.80	7.70	22x38	11.60	13.00	17.40	23.20
5x18	2.15	2.40	3.25	4.30	12x28	3.95	4.40	5.95	7.90	22x40	12.30	13.80	18.45	24.60
					12x30	4.00	4.50	6.00	8.00	22x42	14.00	15.70	21.00	28.00
6x6	.80	.90	1.20	1.60	12x36	5.80	6.50	8.70	11.60	22x46	17.00	19.05	25.50	34.00
6x8	.90	1.00	1.35	1.80	12x40	7.00	7.85	10.50	14.00					
6x9	.95	1.05	1.45	1.90	12x48	9.00	10.10	13.50	18.00	24x24	7.00	7.85	10.50	14.00
6x10	1.00	1.10	1.50	2.00						24x26	7.70	8.60	11.55	15.40
6x12	1.20	1.35	1.80	2.40	14x14	2.90	3.25	4.35	5.80	24x27	8.10	9.05	12.15	16.20
6x14	1.55	1.75	2.35	3.10	14x16	3.10	3.45	4.65	6.20	24x28	8.40	9.40	12.60	16.80
6x16	1.90	2.15	2.85	3.80	14x18	3.40	3.80	5.10	6.80	24x30	8.80	9.85	13.20	17.60
6x18	2.20	2.45	3.30	4.40	14x20	3.70	4.15	5.55	7.40	24x32	10.00	11.20	15.00	20.00
6x20	2.50	2.80	3.75	5.00	14x22	3.90	4.35	5.85	7.80	24x36	12.00	13.45	18.00	24.00
6x24	3.00	3.35	4.50	6.00	14x24	4.10	4.60	6.15	8.20	24x40	14.00	15.70	21.00	28.00
6x30	3.40	3.80	5.10	6.80	14x26	4.30	4.80	6.45	8.60	24x42	16.00	17.90	24.00	32.00
6x36	4.90	5.50	7.35	9.80	14x28	4.50	5.05	6.75	9.00	24x45	18.00	20.15	27.00	36.00
					14x30	4.60	5.15	6.90	9.20	24x48	20.00	22.40	30.00	40.00
7x7	.95	1.05	1.45	1.90	14x32	5.40	6.05	8.10	10.80					
7x9	1.00	1.10	1.50	2.00	14x36	6.50	7.30	9.75	13.00	26x26	8.70	9.75	13.05	17.40
7x10	1.05	1.20	1.60	2.10	14x40	7.70	8.60	11.55	15.40	26x28	9.60	10.75	14.40	19.20
7x12	1.25	1.40	1.90	2.50	14x48	10.00	11.20	15.00	20.00	26x30	10.20	11.40	15.30	20.40
7x14	1.60	1.80	2.40	3.20						26x32	11.30	12.65	16.95	22.60
7x15	1.80	2.00	2.70	3.60	16x16	3.60	4.05	5.40	7.20	26x34	12.50	14.00	18.75	25.00
7x30	3.50	3.90	5.25	7.00	16x18	3.80	4.25	5.70	7.60	26x36	13.60	15.25	20.40	27.20
					16x20	4.00	4.50	6.00	8.00					
8x8	1.00	1.10	1.50	2.00	16x22	4.20	4.70	6.30	8.40	27x27	9.00	10.10	13.50	18.00
8x10	1.10	1.25	1.65	2.20	16x24	4.40	4.95	6.60	8.80	27x38	15.60	17.45	23.40	31.20
8x12	1.30	1.45	1.95	2.60	16x26	4.80	5.40	7.20	9.60					
8x14	1.65	1.85	2.50	3.30	16x28	5.20	5.80	7.80	10.40	28x28	10.80	12.10	16.20	21.60
8x15	1.85	2.05	2.80	3.70	16x30	5.50	6.15	8.25	11.00	28x30	11.40	12.75	17.10	22.80
8x16	2.00	2.25	3.00	4.00	16x32	6.20	6.95	9.30	12.40	28x32	12.70	14.20	19.05	25.40
8x18	2.40	2.70	3.60	4.80	16x36	7.30	8.20	10.95	14.60	28x34	14.00	15.70	21.00	28.00
8x20	2.70	3.00	4.05	5.40	16x40	8.50	9.50	12.75	17.00	28x36	15.20	17.00	22.80	30.40
8x24	3.20	3.60	4.80	6.40	16x42	9.10	10.20	13.65	18.20	28x40	18.00	20.15	27.00	36.00
8x30	3.60	4.05	5.40	7.20										
8x36	5.20	5.80	7.80	10.40	18x18	4.20	4.70	6.30	8.40	30x30	13.00	14.55	19.50	26.00
					18x20	4.40	4.95	6.60	8.80	30x32	14.40	16.15	21.60	28.80
9x9	1.30	1.45	1.95	2.60	18x21	4.50	5.05	6.75	9.00	30x34	15.80	17.70	23.70	31.60
9x12	1.50	1.70	2.25	3.00	18x22	4.60	5.15	6.90	9.20	30x36	17.20	19.25	25.80	34.40
9x14	1.85	2.05	2.80	3.70	18x24	4.80	5.40	7.20	9.60	30x40	20.00	22.40	30.00	40.00
9x15	2.00	2.25	3.00	4.00	18x27	5.60	6.25	8.40	11.20	30x42	22.00	24.65	33.00	44.00
9x16	2.15	2.40	3.25	4.30	18x28	5.80	6.50	8.70	11.60	30x48	26.00	29.10	39.00	52.00
9x18	2.55	2.85	3.85	5.10	18x30	6.10	6.85	9.15	12.20					
9x20	2.85	3.20	4.30	5.70	18x34	7.60	8.50	11.40	15.20	32x32	15.00	16.80	22.50	30.00
9x22	3.20	3.60	4.80	6.40	18x36	8.00	8.95	12.00	16.00	34x34	17.50	19.60	26.25	35.00
9x24	3.30	3.70	4.95	6.60	18x40	9.20	10.30	13.80	18.40					
9x30	3.70	4.15	5.55	7.40	18x48	12.50	14.00	18.75	25.00	36x36	20.00	22.40	30.00	40.00
9x36	5.35	6.00	8.05	10.70						36x40	26.00	29.10	39.00	52.00
					20x20	5.00	5.60	7.50	10.00	36x42	27.00	30.25	40.50	54.00
10x10	1.60	1.80	2.40	3.20	20x22	5.20	5.80	7.80	10.40	36x48	32.00	35.85	48.00	64.00
10x12	1.70	1.90	2.55	3.40	20x24	5.40	6.05	8.10	10.80					
10x14	2.00	2.25	3.00	4.00	20x26	5.90	6.60	8.85	11.80	38x38	26.00	29.10	39.00	52.00
10x15	2.20	2.45	3.30	4.40	20x28	6.40	7.15	9.60	12.80	38x40	27.00	30.25	40.50	54.00
10x16	2.30	2.60	3.45	4.60						38x42	30.00	33.60	45.00	60.00



# Independent Baseboard Registers

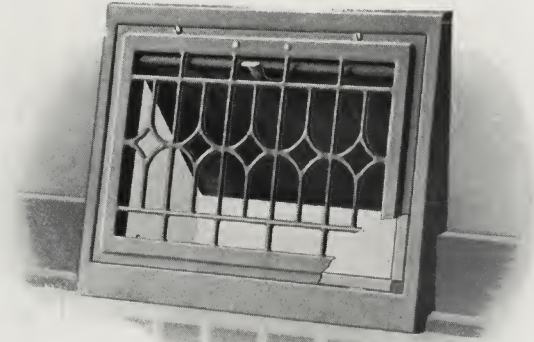
## With Removable Grilles

### Single Valve—Wrought Steel—Style MT

Independent Baseboard Registers reflect beauty in any home in which they are placed, and credit on the furnace man who installs them. Their charming design, obviously fine workmanship and excellent finish combine to make them attractive.

They are most practical, too, strongly made and affording more than the average open area. The valve adjustment is very simple. The operating mechanism is permanently adjusted to the proper tension at the time the register is manufactured, an assurance that the valve will remain in any desired position. The valve handle is comfortable for the fingers to take hold of in operating.

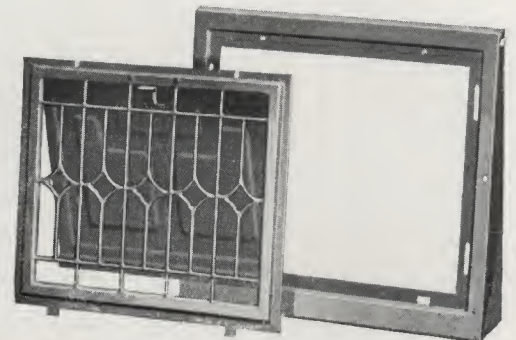
Please order by number.



Standard Package Quantity	Order by this Number	Size of Opening (Register Box Flange) Horizontal Dimension First. Inches	Side Flange Extension from Plaster	Open Area of Face Square Inches	Black Japanned or Prime Coat	White Japanned or Lacquer Finishes	Electro Plated Oxidized Copper, Brass, Bronze or Nickel	Chromium or Sanded Finishes
6	10x 8-1 $\frac{1}{4}$ MT	10x8	1 $\frac{1}{4}$	50	\$2.00	\$ 2.35	\$ 3.50	\$ 3.85
6	12x 8-1 $\frac{1}{4}$ MT	12x8	1 $\frac{1}{4}$	63	2.40	2.90	3.95	4.35
6	12x 9-1 $\frac{1}{4}$ MT	12x9	1 $\frac{1}{4}$	74	2.50	3.00	4.00	4.40
6	10x 8-2 $\frac{1}{4}$ MT	10x8	2 $\frac{1}{4}$	50	2.00	2.35	3.50	3.85
6	12x 8-2 $\frac{1}{4}$ MT	12x8	2 $\frac{1}{4}$	63	2.40	2.90	3.95	4.35
6	12x 9-2 $\frac{1}{4}$ MT	12x9	2 $\frac{1}{4}$	74	3.00	3.50	4.50	4.90
6	12x 8-3 $\frac{1}{4}$ MT	12x8	3 $\frac{1}{4}$	63	3.00	3.50	4.50	4.90
6	12x 9-3 $\frac{1}{4}$ MT	12x9	3 $\frac{1}{4}$	74	3.00	3.50	4.50	4.90
6	12x10-3 $\frac{1}{4}$ MT	12x10	3 $\frac{1}{4}$	83	4.00	4.60	5.75	6.35
1	13x11-3 $\frac{1}{4}$ MT	13x11	3 $\frac{1}{4}$	100	4.50	5.25	6.75	7.50
1	13x11-5 $\frac{1}{4}$ MT	13x11	5 $\frac{1}{4}$	100	5.25	6.00	7.50	8.25
1	14x12-5 $\frac{1}{4}$ MT	14x12	5 $\frac{1}{4}$	123	6.50	7.50	8.50	9.50
1	14x12-7 $\frac{1}{2}$ MT	14x12	7 $\frac{1}{2}$	123	9.00	10.00	12.00	12.50

Each register individually wrapped and packed in corrugated board shipping cases in the standard package quantities specified above.

All sizes are 2 $\frac{1}{8}$  inches from floor line to bottom of register box flange (dimension B, Page 15).

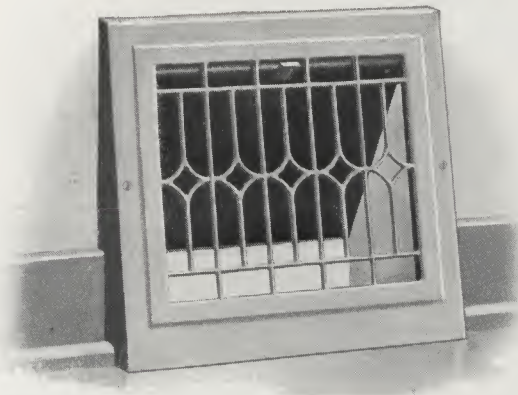




## Independent Baseboard Registers

### One Piece Style — Grille Not Removable

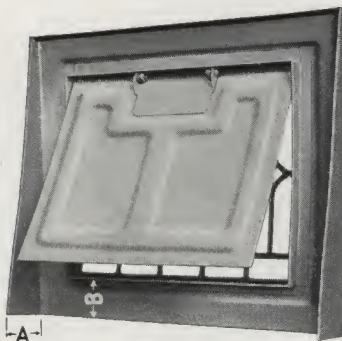
#### Single Valve—Wrought Steel—Style MO



These registers differ from the style shown on the preceding page in that the faces and side flanges are made in one piece and the grilles are not removable.

Please Order by Number.

Standard Package Quantity	Order by this Number	Size of Opening (Register Box Flange) Horizontal Dimension First. Inches	Side Flange Extension from Plaster Dimension "A" Inches	Open Area of Face Square Inches	Black Japanned or Prime Coat	White Japanned or Lacquer Finishes	Electro Plated Oxidized Copper, Brass, Bronze or Nickel	Chromium or Sanded Finishes
6	10x 8-1 $\frac{1}{4}$ MO	10x8	1 $\frac{1}{4}$	50	\$ 1.80	\$ 2.15	\$ 3.15	\$ 3.50
6	12x 8-1 $\frac{1}{4}$ MO	12x8	1 $\frac{1}{4}$	63	2.20	2.65	3.55	4.00
6	12x 9-1 $\frac{1}{4}$ MO	12x9	1 $\frac{1}{4}$	74	2.25	2.70	3.60	4.10
6	10x 8-2 $\frac{1}{4}$ MO	10x8	2 $\frac{1}{4}$	50	1.80	2.15	3.15	3.50
6	12x 8-2 $\frac{1}{4}$ MO	12x8	2 $\frac{1}{4}$	63	2.20	2.65	3.55	4.00
6	12x 9-2 $\frac{1}{4}$ MO	12x9	2 $\frac{1}{4}$	74	2.70	3.15	4.05	4.50
6	12x 8-3 $\frac{1}{4}$ MO	12x8	3 $\frac{1}{4}$	63	2.70	3.15	4.05	4.50
6	12x 9-3 $\frac{1}{4}$ MO	12x9	3 $\frac{1}{4}$	74	2.70	3.15	4.05	4.50
6	12x10-3 $\frac{1}{4}$ MO	12x10	3 $\frac{1}{4}$	83	3.60	4.15	5.20	5.75
1	13x11-3 $\frac{1}{4}$ MO	13x11	3 $\frac{1}{4}$	100	4.05	4.75	6.10	6.75
1	13x11-5 $\frac{1}{4}$ MO	13x11	5 $\frac{1}{4}$	100	4.75	5.40	6.75	7.50
1	14x12-5 $\frac{1}{4}$ MO	14x12	5 $\frac{1}{4}$	123	5.85	6.75	7.65	8.50
1	14x12-7 $\frac{1}{2}$ MO	14x12	7 $\frac{1}{2}$	123	8.10	9.00	10.75	11.25



Each register individually wrapped and packed in corrugated board shipping cases in the standard package quantities specified above.

All sizes are 2 $\frac{1}{8}$  inches from floor line to bottom of register box flange (dimension "B").

The attractive design, dependable operating mechanism and many beautiful finishes in which it is furnished have combined to make this register very popular.



# Independent Single Valve Wall Registers—Wrought Steel



STYLE HM—ONE PIECE—CONVEX FACE  
With Band Steel Wall Frame

## Style HM

For Use in the Side Wall Above the Baseboard  
For Horizontal Setting Only  
ONE-PIECE CONVEX FACE

Stack Head Size Inches	ONE PIECE STYLE Order by this Number	Stand. Pack. Quan.	Open Area Sq. In.	Black Japanned or Prime Coat	White Japanned, Imitation Oak or Lacquer Finishes	ELECTRO PLATED	
						Oxidized Copper, Brass, Bronze or Nickel	Chromium or Sanded Finishes
10x8	10x 8 HM	16	50				
12x8	12x 8 HM	16	63	\$1.50	\$1.80	\$2.85	\$3.50
12x9	12x 9 HM	16	74	1.75	2.10	3.30	4.00
12x10	12x10 HM	12	83	1.90	2.30	3.60	4.60
14x12	14x12 HM	8	123	2.20	2.65	4.00	4.95
				3.95	4.75	6.20	7.20

## Style HMT

The register and outer frame are separate units, the frame being removed from the register at the time of installation.

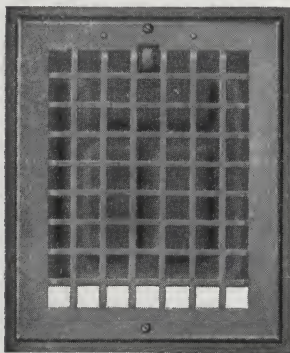
Stack Head Size Inches	TWO PIECE STYLE Order by this Number	Stand. Pack. Quan.	Open Area Sq. In.	Black Japanned or Prime Coat	White Japanned	Lacquered or Imitation Oak Finishes	ELECTRO PLATED	
							Oxidized Copper, Brass, Bronze or Nickel	Chromium or Sanded Finishes
10x8	10x 8 HMT	15	50	\$1.65	\$2.00	\$2.00	\$3.15	\$3.85
12x8	12x 8 HMT	12	63	1.90	2.30	2.30	3.65	4.40
12x9	12x 9 HMT	12	74	2.10	2.55	2.55	4.00	5.10
12x10	12x10 HMT	10	83	2.40	2.90	2.90	4.40	5.50



STYLE HMT—TWO PIECE

# Self Straightening Wall Registers

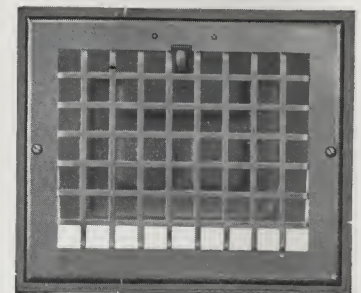
PATENTED



For Vertical Setting

Stack Head Size Inches	Order by this Number	Standard Package Quantity	Black Japanned or Prime Coat	White Japan, Imitation Oak or Lacquer Finishes	Ox. Copper, Brass, Bronze or Nickel Plated	Chromium or Sanded Finishes
8x10	8x10VSS	16	\$1.50	\$1.80	\$2.85	\$3.50
8x12	8x12VSS	16	1.75	2.10	3.30	4.00
9x12	9x12VSS	16	1.90	2.30	3.60	4.60
10x12	10x12VSS	12	2.20	2.65	4.00	4.95
For Horizontal Setting						
10x8	10x8HSS	16	\$1.50	\$1.80	\$2.85	\$3.50
12x8	12x8HSS	16	1.75	2.10	3.30	4.00
12x9	12x9HSS	16	1.90	2.30	3.60	4.60
12x10	12x10HSS	12	2.20	2.65	4.00	4.95

FOR VERTICAL SETTING  
In Ordering, Specify Style VSS

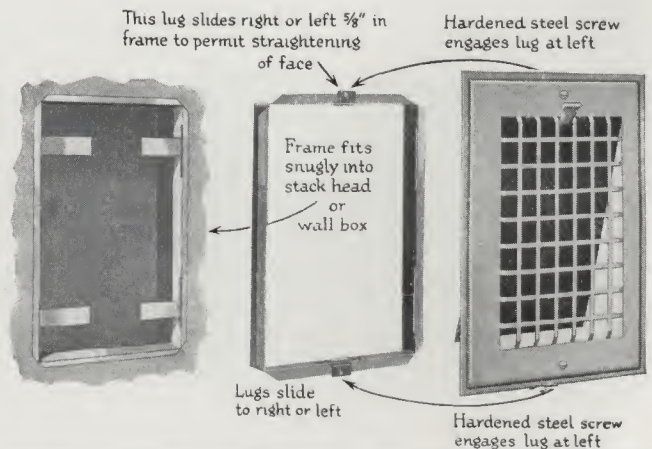


FOR HORIZONTAL SETTING  
In Ordering, Specify Style HSS

## If the Stackhead is Crooked in the Wall

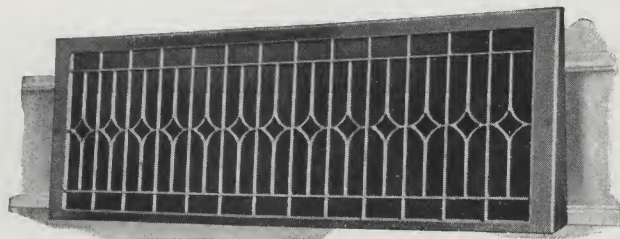
Even though the stackhead is out of line the Self-Straightening register can be set straight and true. The face of this register screws to two loose lugs. These lugs slide sideways in two slots in the wall frame.

This makes it possible to tilt the register one way or the other and to line it up plumb and true though the stackhead may be crooked.





## Independent Baseboard Cold Air Intakes

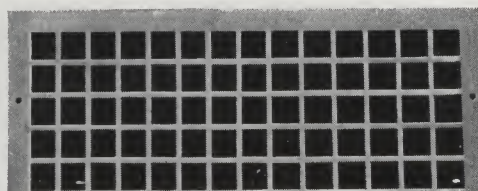


In two lengths; to take in the space between either one or two studs.

Order by this Number	Size of Opening Inches	Side Flange Extension from Plaster Inches	Open Area Sq. In.	Extreme Overall Height and Length Inches	Black Japanned or Prime Coat	White Japan, Lacquer Finishes or Imitation Oak	ELECTRO PLATED	
							Oxidized Copper, Brass, Bronze or Nickel	Chromium or Sanded Finishes
714	7½x14	3¼	76	8¾x16	\$2.25	\$2.75	\$3.50	\$4.00
730	7½x30	3¼	165	8¾x32	4.50	5.50	7.00	8.00
913	9½x13½	3¼	101	10¾x16	2.50	3.00	4.50	5.00
929	9½x29½	3¼	219	10¾x32	5.00	6.00	9.00	10.00
1113	11½x13½	4¼	125	12¾x16	2.75	3.25	4.75	5.25
1129	11½x29½	4¼	270	12¾x32	5.50	6.50	9.50	10.50

## Wrought Steel—Return Air Intakes

No. 82 RAI



For use in stair risers or flush installations in the baseboard.

Wood screws for attaching are included with each plate.

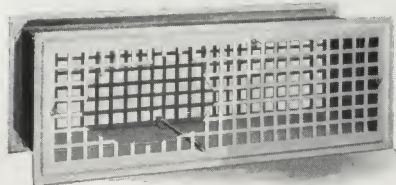
Size of Opening Inches	Open Area Square Inches	Extreme Overall Size Inches	Black Japan or Prime Coat	White Japan, Imitation Oak or Lacquer Finishes	Electro Plated Ox. Copper, Nickel, Brass or Bronze	Chromium or Sanded Finishes
14x4	37	4¾x15½	\$1.25	\$1.45	\$2.20	\$3.30
24x4	64	4¾x25½	1.85	1.95	3.00	4.50
30x4	80	4¾x31½	2.15	2.40	3.70	5.55
14x5	47	5¾x15½	1.40	1.55	2.40	3.60
24x5	80	5¾x25½	1.85	2.10	3.20	4.80
30x5	100	5¾x31½	2.30	2.60	4.00	6.00
14x6	56	6¾x15½	1.50	1.70	2.60	3.90
24x6	96	6¾x25½	2.20	2.45	3.80	5.70
30x6	121	6¾x31½	2.65	3.00	4.60	6.90

Additional sizes can be furnished.

## Adjustable Wall Ventilators—All Steel

For use to secure circulation between rooms on the same floor.

Consists of two wrought steel white japanned grilles, a sheet metal box which adjusts from 4 to 8 inches, connecting the two, spiral springs holding all in position. It is ready to be installed when received by the purchaser and will fit all ordinary partitions.



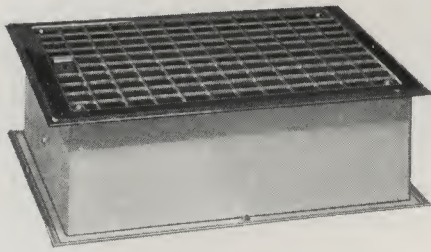
No.	Size of Sheet Metal Box Inches	Extreme Dimensions of Register Faces Inches	List Price Each
324	8x24	10x26	\$ 7.60
330	8x30	10x32	8.50
1024	10x24	12x26	8.30
1030	10x30	12x32	9.50
1224	12x24	14x26	9.00
1230	12x30	14x32	10.50

Each Ventilator in a separate package.



## Independent Adjustable Ceiling Ventilators All Steel—With Telescoping Boxes

Nos. 80-120



With connecting boxes telescoped

No.	Size of Sheet Metal Box Inches	List Price Each
80	8x10	\$2.50
85	8x12	3.00
90	9x12	3.25
100	10x12	3.85
105	10x14	4.50
120	12x14	5.15

Each Ventilator in a corrugated board re-shipping carton. Additional sizes can be furnished.

With the use of Ceiling Ventilators the surplus heat from the lower rooms is utilized and carried to the rooms above.

They are indispensable for use with Pipeless or Single Register furnaces, Cabinet Heaters or Parlor Furnaces furnishing the only satisfactory method of warming upper rooms with the doors closed. The same success comes if used with any style of heating stove.

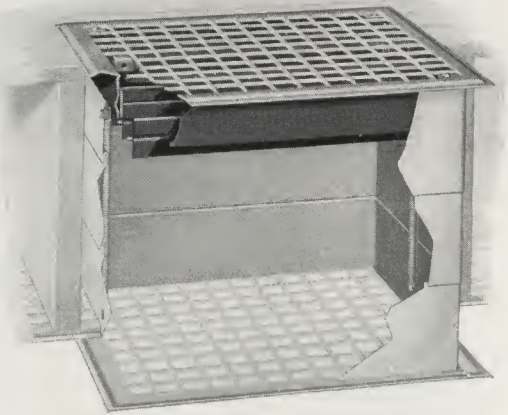
Each Ventilator is complete in itself; a black japanned floor register with valves, a white japanned ceiling plate, and adjustable sheet metal boxes connecting the two, spiral springs holding all in position.

It is ready to install when received by the purchaser and will fit all ordinary ceilings.

The installation is made quickly by one man from the floor of the room above. Often, at the time of installation, the floor and ceiling openings are cut out of alignment. In such cases the connecting boxes accommodate themselves to the variation and make a satisfactory connection.

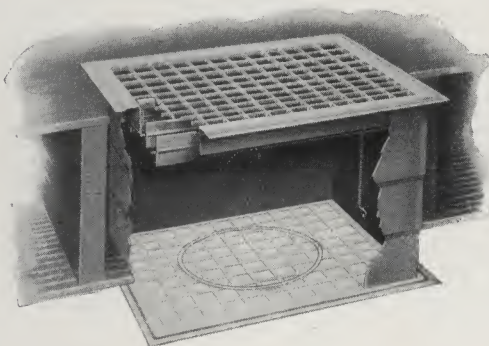
All sizes with boxes telescoped are but little more than four inches high.

By making the connecting boxes in three sections, they are materially strengthened and the liability of damage in shipping and handling is reduced to the minimum.



With connecting boxes extended

### 40-46 PATTERN—Ceiling Face with six-inch round opening in center

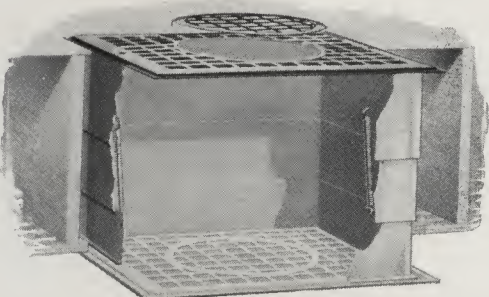


The round opening in the white japanned ceiling face provides means for reaching the interior at the time of installation and this opening may also be used as the connection to the warm air pipe of a double heater stove.

	No.	Size of Sheet Metal Box Inches	List Price Each
The illustration shows the removable center piece in position.	40	8x10	\$3.10
	41	8x12	3.65
	42	9x12	4.00
	43	10x12	4.60
	44	10x14	5.30
	45	12x14	6.00

Each Ventilator in a corrugated board re-shipping carton.

### COMBINATION PATTERN—May be used as six-inch Smoke Pipe Register



Both the black floor register face and the white wrought steel ceiling plate are provided with openings for a six-inch smoke pipe to pass through.

Center pieces to close these openings are furnished.

	No.	Size of Sheet Metal Box Inches	List Price Each
The floor register face is made without valves.	108	8x10	\$3.10
	1210	10x12	4.60

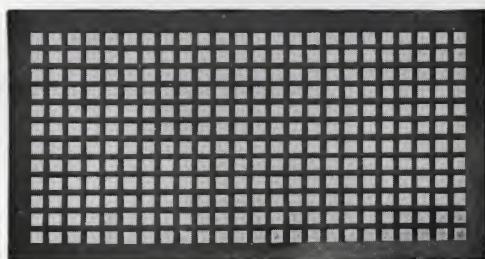
Each Ventilator in a corrugated board re-shipping carton.

Made with six-inch smoke pipe openings only.

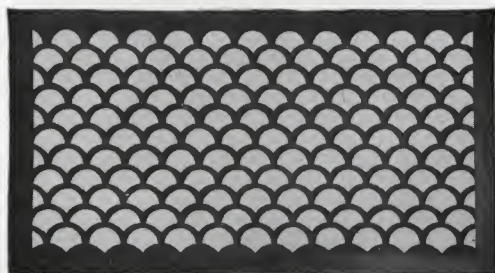


# Independent Wrought (Perforated) Steel Grilles

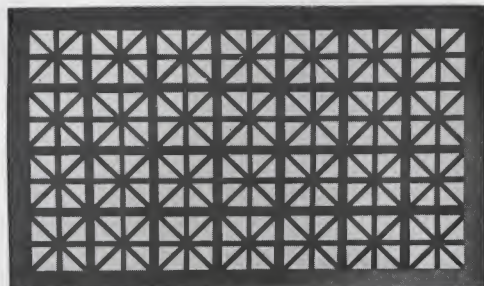
ALSO MADE OF BRASS, BRONZE, ALUMINUM AND OTHER METALS



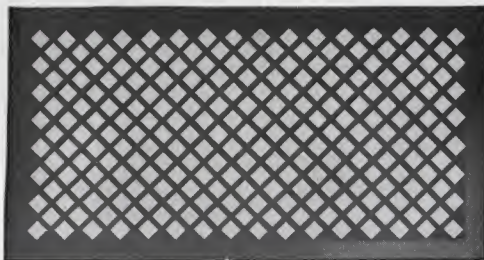
PLAIN LATTICE—No. 75 is the size most often used.



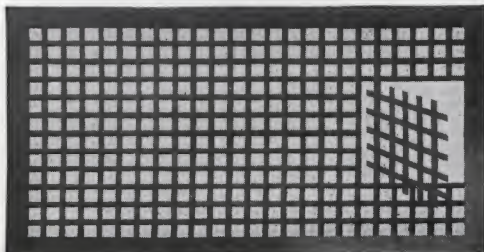
No. 225 S—67% Open Area  
Openings in width, 2 inches center to center.  
Openings in height, 2 1/4 inches center to center.  
Width of interior bars, 1/4 inch.  
Orders should specify which dimension is height.



No. 3 3/8 G—3 x 3 inch openings.  
Bars between squares 3/8 inch.  
Each square, 5 square inches open area.



No. 75D—57% Open Area (Variable)  
3/4 inch diagonal square openings, 1/4 inch cross bars, 3/8 inch multiples.  
Each opening: .5625 sq. in.



Any Grille shown on this page can be furnished with Invisible Doors  
The exact location should be specified.

Grilles perforated from sheet metal to sizes as specified to meet our customers' requirements are shown on this page.

They are made to order and are not carried in stock but usually can be supplied with little delay. They can be furnished without finish or any finish desired can be put on them. Prime Coat is the usual finish where the grilles are to be painted to match interior finish.

## Plain Lattice Grilles in five sizes of openings:

No. 50; 45% free area, 3/4" multiples 1/2" sq. opening, 1/4" cross bars.

No. 75; 57% free area, 1" multiples 3/4" sq. openings, 1/4" cross bars.

No. 82; 67% free area, 1" multiples .82" x .82" sq. openings, .18" cross bars.

No. 875; 61% free area, 1 1/8" multiples 7/8" sq. openings, 1/4" cross bars.

No. 100; 64% free area, 1 1/4" multiples 1" sq. openings, 1/4" cross bars.

The thickness recommended for steel grilles is No. 12 gauge (approximately 1/8") but No. 14 gauge (.078") or No. 10 gauge (.140") may also be used.

The chart below shows the thickness of various gauges of steel.

No. 10 ga.		.140" thick
No. 12 ga.		.109" thick
No. 14 ga.		.078" thick

We welcome inquiries, which should include the following information:

Daylight opening size and overall size.

Quantity and finish.

Material and gauge.

If invisible doors are required, their location should be stated.

Design preferred.

If screw holes are desired, their location and number and whether to be countersunk.

If for use in the floor, it should be specified.

## Angle Frames

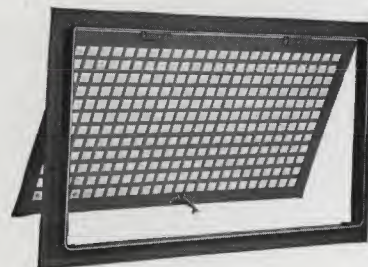
Any of our grilles can be furnished with steel angle frames to which they may be hinged or screwed.

Standard sizes of angle frame material:

3/8 x 3/8 x 1/8 inch

1 1/4 x 1 1/4 x 1/8 inch

Wall opening sizes should be specified.



## Special Grille Bulletin

Showing prices and more detailed information will be sent upon request.

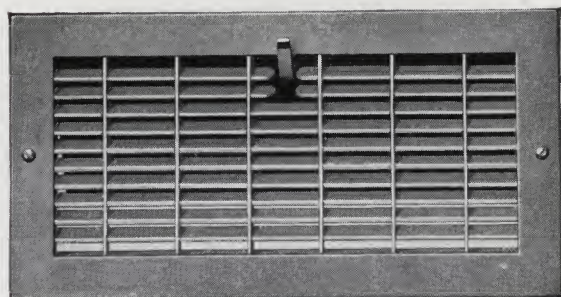


# Independent "Fabrikated" Air Conditioning Registers

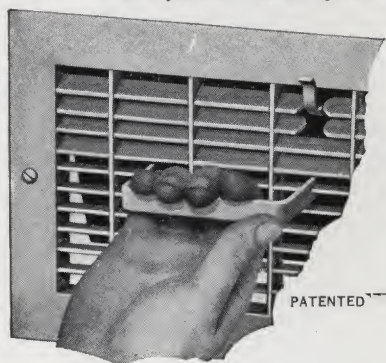
REG. U.S. PAT. OFFICE

## Adjustable Directed Air Flow

The grille bars may be individually adjusted to direct the air flow to any desired degree to 45°, either right, left or upward and downward. The extensive Independent line provides sizes, styles and types for practically all requirements.

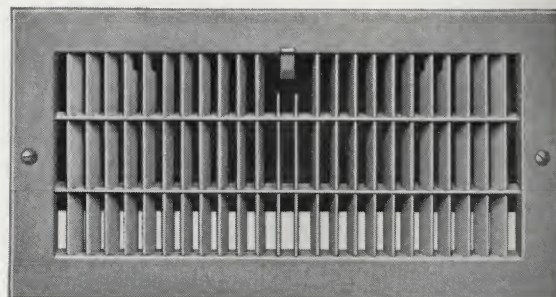


**No. 311A—Air Flow Downward.**  
Angle of deflection adjustable from straight to 45 degrees.  
Also adjustable to secure upward air flow.



The directional adjustment can be made at the time of installing and after the system is operating it may easily be changed at any time to make corrections necessary to meet unforeseen or changed conditions.

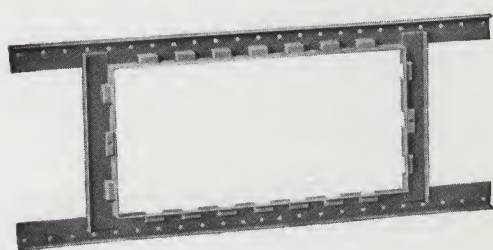
The method of adjustment is very simple. With each order is included a tool for turning the grille bars. The picture shows the simplicity of the operation, and the ease with which the bars can be adjusted for any angle of deflection to 45°.



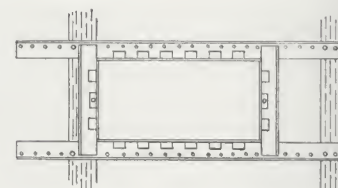
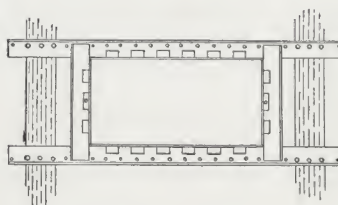
**No. 321 A—A Fan Shape in Air Flow Deflection.**  
Angles to the Left—Straight Flow—Angles to the Right.  
Any combination desired can be secured.

Size of Opening in Face:  $\frac{3}{8}$  inch wide.  
Interior Bars:  $\frac{1}{2}$  inch deep x 14 Ga. (.078) Cold Rolled Steel.  
Face Rim: Cold Rolled Steel.

## Wall Frames — Style WX For Installation Before Lath and Plaster



Standard Depth of Frame,  $\frac{5}{8}$  in.

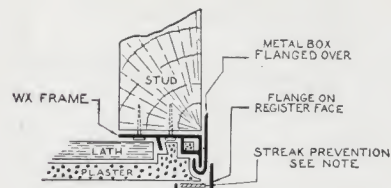


The frame arms are of sufficient length so that the stackhead may be located in any position desired between the studs; in the center or at the right or left.

The stackhead flanges should be made to extend through the frame openings, and of sufficient length so that they may be bent backward and over the outside of the frame edges, thus securing a tight and rigid connection between the stackhead and wall frame. The lath and plaster cover the arms, the plaster when completed being flush with the outer edges of the frame.

To complete the installation the register is screwed to the frame after plastering. The outer rims of the register face extend beyond the frame edges and cover any plaster deficiency or cracking around the frame.

**Note:** The rims of the register faces lend themselves to air-tightness being formed to provide space for sponge rubber, felt, asbestos or plaster packing to seal the register to the wall.



We issue a special and very complete catalogue showing registers and grilles designed especially for forced air and air conditioned installations which will be sent upon request.





# • INDEPENDENT REGISTER

*Always Leading  
Always Progressing*

## *Again in 1938*

**MEETS A GROWING NEED**



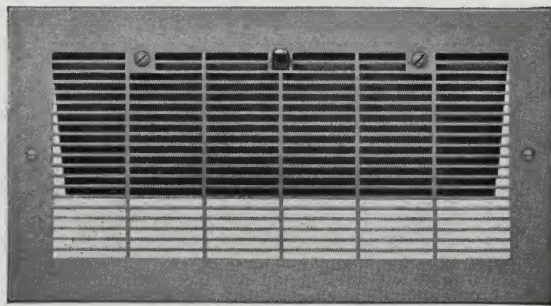
**THE INDEPENDENT REGISTER CO.**

3747 East 93rd Street, Cleveland, Ohio



# Independent Wrought Steel Registers

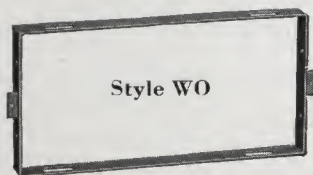
The Faces of Perforated Metal



No. 136 Wall Register

Meeting the wishes for a quality line of Air Conditioning Registers and Grilles at a moderate price, Independent again leads the way, with the New Number 36 line.

Built to quality specifications, but in no way taking the place of Independent "Fabrikated," this new line is moderately priced to meet the needs for lower priced installations.



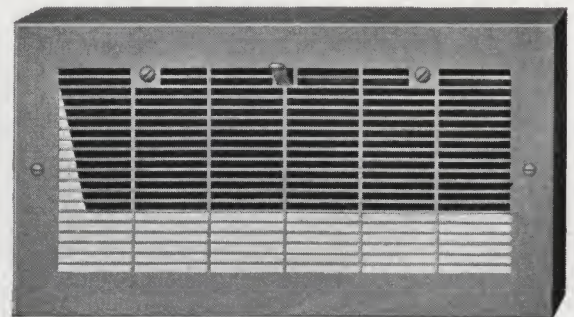
Style WO Frame

Style WO Frame may be installed either before or after lath and plaster.

These frames set inside of the stack head flanges and are usually attached to them by sheet metal straps riveted to the stack head and turned back over the frame; or, they may be attached by sheet metal screws. Slots are provided in the horizontal dimension; screw holes in the vertical dimension.

The register is screwed to the frame, to complete the installation. The outer rims of the register face cover any plaster deficiency around the stack head.

The No. 36 line is regularly equipped and priced with WO Frames. Style WX and BX may be had at only a slight advance in cost.

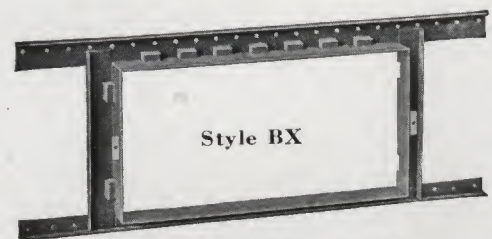


No. 136BO Baseboard Register

$\frac{7}{8}$ " Projecting flanges



Standard Depth of Frame,  $\frac{5}{8}$  in.  
WX Wall Frame



Standard Depth of Frame  $1\frac{3}{8}$  in.  
BX Baseboard Frame

Style WX and BX Frames are for installation before the lath and plaster.

The frame arms are of sufficient length so that the stack head may be located in any position desired between the studs; in the center or at the right or left.

Stack head flanges should extend through the frame opening, and be of sufficient length so that they may be bent backward and over the outside of the frame edges, thus securing a tight, rigid connection between the stackhead and wall frame. The lath and plaster cover the arms. The plaster when completed should be flush with the outer edges of the frame.

To complete installation the register is then screwed to the frame. The outer rims of the register face extend beyond the frame edges and cover any plaster deficiency or cracking around the frame.

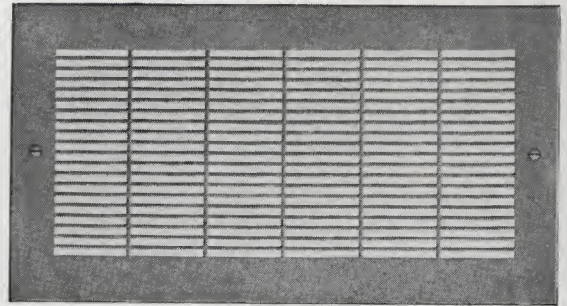


# Independent Wrought Steel Intakes

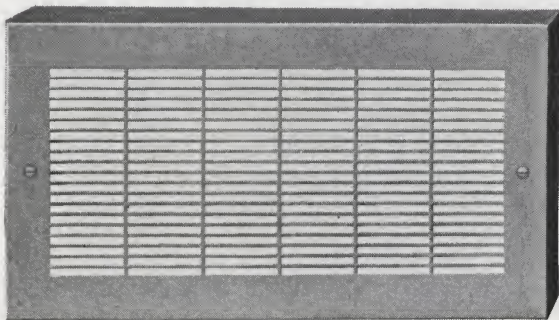
## The Faces of Perforated Metal

Grilles in the No. 36 design are very attractive and harmonize with present trends in architecture.

No. 36 Grilles are available in the many sizes listed, and can be furnished complete with any style of setting frame, when desired to be used as a warm air outlet.



No. 36 Wall Grille



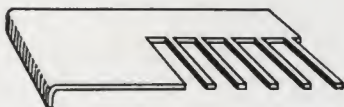
No. 36-BBI Baseboard Intake  
 $\frac{3}{8}$ " Projecting flanges

This No. 36 design when used in the baseboard blends in with its long lines, and when given the same finish, is very inconspicuous.

The narrow  $\frac{3}{16}$ " punching results in low visibility through the register and fine appearance.

On the Baseboard Registers and the Baseboard Intakes the side and top projecting flanges extend  $\frac{7}{8}$  inch from the plaster line. The Baseboard fits tightly to the  $\frac{7}{8}$  inch flange, thus making a flush installation.

The new No. 136 line of registers are non-adjustable. The air flow is straight out from the register grille. For Adjustable Directed Air Flow refer to Designs No. 311-A and 321-A in the complete general catalogue.



The outer rim lends itself to air tightness. Note from the illustration how the edges are turned backward providing space in the rims to hold a felt or rubber gasket, or the rim may be filled with patching plaster or cement, thus sealing the register face to the wall.

### Detail Information

#### Punchings:

8" to 10" lengths— $\frac{3}{16}$  x  $1\frac{13}{16}$   
12" to 30" lengths— $\frac{3}{16}$  x  $1\frac{27}{32}$

#### Daylight Opening:

$\frac{1}{2}$ " Horizontal x 1" Vertical  
Less than stack sizes

#### Overall Sizes:

$1\frac{3}{4}$ " Horizontal x  $1\frac{1}{4}$ " Vertical  
Greater than stack sizes

**Rubber Gasket**—Rubber Gasket can be supplied with the New No. 36 line at slight additional cost. We can supply this Gasket material in 10 ft. lengths, with one side cement coated for attachment on the job.



# Independent Wrought Steel Registers

The Faces of Perforated Metal

List Prices: No.'s 136 Wall Registers; 136 BO Baseboard Registers;  
36 Wall Grilles; 36 BBI Baseboard Intakes.

To Fit Stackhead Size: (Horizontal Dimension First) Inches	Open (Free) Area Sq.in.	1 No. 136 WALL REGISTER NO FRAME			2 No. 136 WALL REGISTER WITH WO FRAME			3 No. 136-BO BASEBOARD REGISTER NO FRAME			4 No. 136-BO BASEBOARD REGISTER WITH WO FRAME		
		Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze
8x4	16	\$1.10	\$1.25	\$1.95	\$1.30	\$1.45	\$2.15	\$1.25	\$1.40	\$2.05	\$1.45	\$1.60	\$2.25
8x6	27	1.25	1.40	2.15	1.45	1.60	2.35	1.40	1.55	2.30	1.60	1.75	2.50
10x4	21	1.15	1.30	2.00	1.35	1.50	2.20	1.30	1.45	2.15	1.50	1.65	2.35
10x5	27	1.20	1.40	2.15	1.40	1.60	2.35	1.40	1.55	2.30	1.60	1.75	2.50
10x6	34	1.25	1.45	2.20	1.45	1.65	2.40	1.45	1.60	2.35	1.65	1.80	2.55
10x8	48	1.40	1.55	2.40	1.65	1.80	2.65	1.55	1.75	2.60	1.80	2.00	2.85
12x4	25	1.25	1.40	2.15	1.45	1.60	2.35	1.40	1.55	2.30	1.60	1.75	2.50
12x5	33	1.35	1.50	2.35	1.60	1.75	2.60	1.50	1.70	2.50	1.75	1.95	2.75
12x6	41	1.40	1.55	2.40	1.65	1.80	2.65	1.55	1.75	2.60	1.80	2.00	2.85
12x8	58	1.50	1.70	2.60	1.75	1.95	2.85	1.70	1.90	2.80	1.95	2.15	3.05
12x9	66	1.60	1.80	2.80	1.90	2.10	3.10	1.80	2.05	3.00	2.10	2.35	3.30
12x10	75	1.85	2.10	3.20	2.15	2.40	3.50	2.10	2.30	3.45	2.40	2.60	3.75
14x4	29	1.25	1.45	2.20	1.45	1.65	2.40	1.45	1.60	2.35	1.65	1.80	2.55
14x5	39	1.40	1.55	2.40	1.65	1.80	2.65	1.55	1.75	2.60	1.80	2.00	2.85
14x6	48	1.50	1.70	2.60	1.75	1.95	2.85	1.70	1.90	2.80	1.95	2.15	3.05
14x8	68	1.60	1.80	2.80	1.90	2.10	3.10	1.80	2.05	3.00	2.10	2.35	3.30
14x10	87	2.05	2.35	3.60	2.40	2.70	3.95	2.35	2.60	3.85	2.70	2.95	4.20

To Fit Stackhead Size: (Horizontal Dimension First) Inches	5 No. 36 WALL GRILLES NO VALVES OR FRAME			6 No. 36-BBI BASEBOARD INTAKE 3/8" PROJECTING FLANGE			7 Setting Frames WX BX	To Fit Stackhead Size: (Horizontal Dimension First) Inches	5 No. 36 WALL GRILLES NO VALVES OR FRAME			6 No. 36-BBI BASEBOARD INTAKE 3/8" PROJECTING FLANGE			7 Setting Frames WX BX
	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze			Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	
8x4	.60	.75	\$1.45	.75	.90	\$1.55	.80	14x4	.75	.90	1.65	.90	1.05	1.80	.90
8x6	.70	.85	1.60	.85	1.00	1.75	.85	14x5	.80	.95	1.80	.95	1.15	2.00	.95
10x4	.65	.80	1.50	.80	.95	1.65	.80	14x6	.85	1.05	1.95	1.05	1.25	2.15	1.05
10x5	.70	.85	1.60	.85	1.00	1.75	.85	14x8	.90	1.10	2.10	1.10	1.35	2.30	1.10
10x6	.75	.90	1.65	.90	1.05	1.80	.90	14x10	1.15	1.45	2.70	1.45	1.70	2.95	1.45
10x8	.80	.95	1.80	.95	1.15	2.00	.95	24x4	1.00	1.20	2.25	1.20	1.45	2.50	1.20
12x4	.70	.85	1.60	.85	1.00	1.75	.85	24x5	1.05	1.30	2.40	1.30	1.50	2.65	1.30
12x5	.75	.90	1.75	.90	1.10	1.90	.90	24x6	1.25	1.50	2.85	1.50	1.80	3.15	1.50
12x6	.80	.95	1.80	.95	1.15	2.00	.95	24x8	1.45	1.75	3.30	1.75	2.10	3.65	1.75
12x8	.85	1.05	1.95	1.05	1.25	2.15	1.05	30x4	1.20	1.50	2.80	1.50	1.75	3.05	1.50
12x9	.90	1.10	2.10	1.10	1.35	2.30	1.10	30x5	1.30	1.60	3.00	1.60	1.90	3.30	1.60
12x10	1.05	1.30	2.40	1.30	1.50	2.65	1.30	30x6	1.50	1.85	3.45	1.85	2.20	3.80	1.85
								30x8	1.70	2.10	3.90	2.10	2.45	4.30	2.10
								30x10	1.90	2.30	4.35	2.30	2.75	4.80	2.30

Tables Continued in Opposite Columns

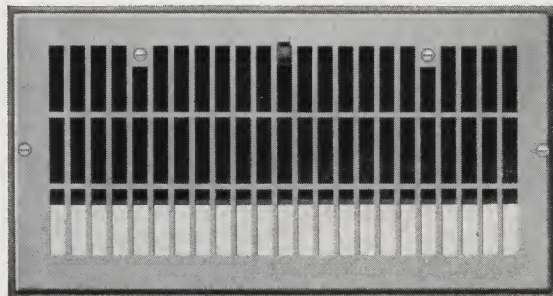
AVAILABLE ONLY IN SIZES SHOWN IN ABOVE TABLES



# INDEPENDENT

Wrought Steel Air Conditioning Registers & Grilles

---



DESIGN No. 37



*Always Leading*  
*Always Progressing*

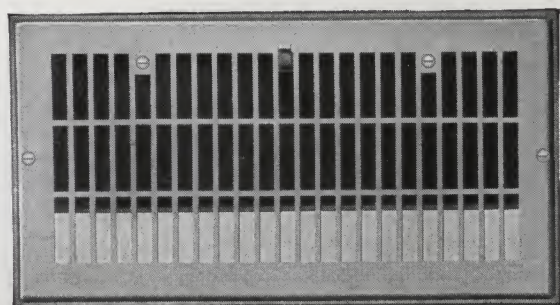
**THE INDEPENDENT REGISTER CO.**  
**3747 EAST 93rd STREET • CLEVELAND, OHIO**

FOLDER S-37



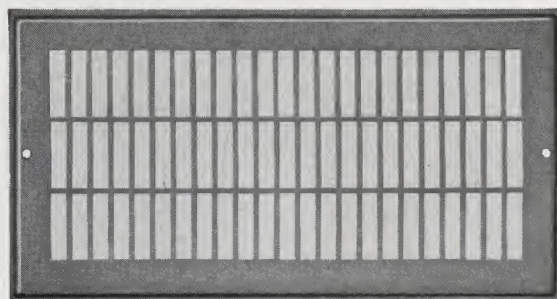
# Independent Wrought Steel Registers and Intakes

The Faces of Perforated Metal

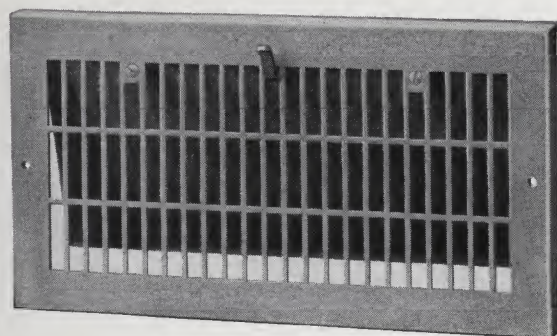


No. 137 Wall Register

The No. 137 Wall Registers and No. 37 Wall Grilles are furnished with beveled outer edges. This bevel lends itself to holding a rubber gasket or cement, thus making the line "Streak Proof."



No. 37 Wall Grille

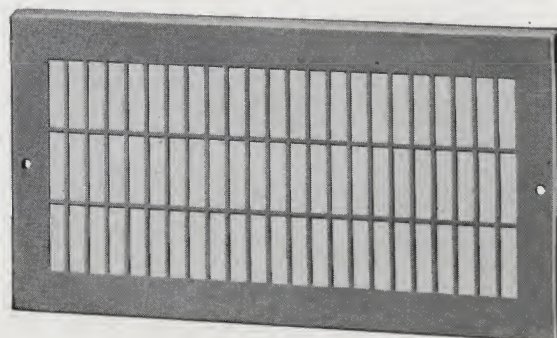


No. 137-BO Baseboard Register  
 $\frac{7}{8}$ " Projecting Flanges

Wall Grilles can be used for installation in the wall or as a flush type intake in the Baseboard.

Wall Grilles can be equipped with any style of setting frame, as shown on the next page.

On the Baseboard Registers and the Baseboard Intakes the side and top projecting flanges extend  $\frac{7}{8}$  inch from the plaster line. The Baseboard fits tightly to the  $\frac{7}{8}$ " flange, thus making a flush installation.

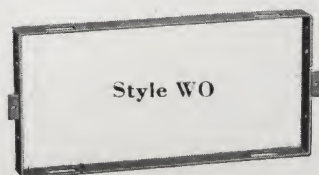


No. 37-BBI Baseboard Intake  
 $\frac{7}{8}$ " Projecting Flange

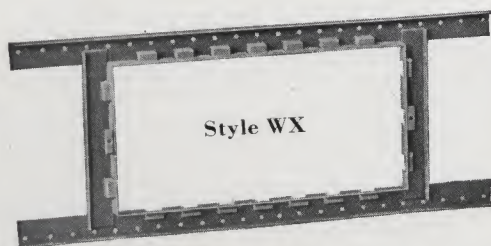


# Independent Wrought Steel Setting Frames

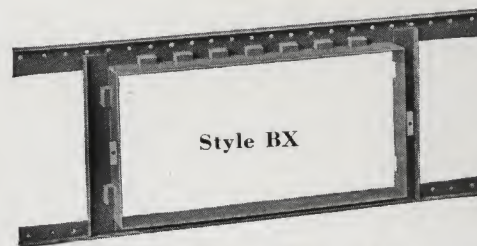
Three types of setting frames are available for use with this design of register and grille. The frame arms of Styles WX and BX are of sufficient length to permit any desired position between the studs.



Style WO



Style WX



Style BX

The list prices given in Tables 12 and 14 include the WO type of Setting Frame.

Standard Depth of Frame,  $\frac{3}{8}$  in.  
WX Wall Frame

Standard Depth of Frame,  $1\frac{3}{8}$  in.  
BX Baseboard Frame

The stackhead flanges should be made to extend through the frame opening, and be of sufficient length so that they may be bent backward and over the outside of the frame edges, thus securing a tight, rigid connection between the stackhead and wall frame. The lath and plaster cover the frame arms. The plaster when completed should be flush with the outer edges of the frame.

List Prices: Nos. 137 Wall Registers; 137-BO Baseboard Registers; 37 Wall Grilles; 37-BBI Baseboard Intakes.

To Fit Stackhead Size: (Horizontal Dimension First) Inches	8 No. 37 WALL GRILLES NO VALVES OR FRAMES			9 No. 37-BBI BASEBOARD INTAKE $\frac{3}{8}$ " PROJECT'G FLANGE			10 Setting Frames WX BX		To Fit Stackhead Size: (Horizontal Dimension First) Inches	8 No. 37 WALL GRILLES NO VALVES OR FRAMES			9 No. 37-BBI BASEBOARD INTAKE $\frac{3}{8}$ " PROJECT'G FLANGE			10 Setting Frames WX BX
	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze				Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	
8x4	.60	.75	1.45	.75	.90	1.55	.80		22x4	.90	1.10	2.10	1.10	1.35	2.30	1.10
8x6	.70	.85	1.60	.85	1.00	1.75	.85		22x5	1.00	1.20	2.25	1.20	1.45	2.50	1.20
									22x6	1.15	1.45	2.70	1.45	1.70	2.95	1.45
10x4	.65	.80	1.50	.80	.95	1.65	.80		22x8	1.35	1.70	3.15	1.70	2.00	3.45	1.70
10x5	.70	.85	1.60	.85	1.00	1.75	.85		22x10	1.50	1.85	3.45	1.85	2.20	3.80	1.85
10x6	.75	.90	1.65	.90	1.05	1.80	.90									
10x8	.80	.95	1.80	.95	1.15	2.00	.95		24x4	1.00	1.20	2.25	1.20	1.45	2.50	1.20
									24x5	1.05	1.30	2.40	1.30	1.50	2.65	1.30
12x4	.70	.85	1.60	.85	1.00	1.75	.85		24x6	1.25	1.50	2.85	1.50	1.80	3.15	1.50
12x5	.75	.90	1.75	.90	1.10	1.90	.90		24x8	1.45	1.75	3.30	1.75	2.10	3.65	1.75
12x6	.80	.95	1.80	.95	1.15	2.00	.95		24x10	1.55	1.90	3.60	1.90	2.30	3.95	1.90
12x8	.85	1.05	1.95	1.05	1.25	2.15	1.05									
12x9	.90	1.10	2.10	1.10	1.35	2.30	1.10		26x4	1.05	1.30	2.40	1.30	1.50	2.65	1.30
12x10	1.05	1.30	2.40	1.30	1.50	2.65	1.30		26x5	1.10	1.35	2.55	1.35	1.60	2.80	1.35
									26x6	1.30	1.60	3.00	1.60	1.90	3.30	1.60
14x4	.75	.90	1.65	.90	1.05	1.80	.90		26x8	1.55	1.90	3.60	1.90	2.30	3.95	1.90
14x5	.80	.95	1.80	.95	1.15	2.00	.95		26x10	1.70	2.10	3.90	2.10	2.45	4.30	2.10
14x6	.85	1.05	1.95	1.05	1.25	2.15	1.05									
14x8	.90	1.10	2.10	1.10	1.35	2.30	1.10		28x4	1.10	1.35	2.55	1.35	1.60	2.80	1.35
14x10	1.15	1.45	2.70	1.45	1.70	2.95	1.45		28x5	1.25	1.50	2.85	1.50	1.80	3.15	1.50
									28x6	1.45	1.75	3.30	1.75	2.10	3.65	1.75
16x4	.75	.90	1.75	.90	1.10	1.90	.90		28x8	1.55	1.90	3.60	1.90	2.30	3.95	1.90
16x5	.80	1.00	1.90	1.00	1.20	2.05	1.00		28x10	1.80	2.25	4.20	2.25	2.65	4.60	2.25
16x6	.90	1.10	2.10	1.10	1.35	2.30	1.10									
16x8	1.05	1.30	2.40	1.30	1.50	2.65	1.30		30x4	1.20	1.50	2.80	1.50	1.75	3.05	1.50
16x10	1.25	1.50	2.85	1.50	1.80	3.15	1.50		30x5	1.30	1.60	3.00	1.60	1.90	3.30	1.60
									30x6	1.50	1.85	3.45	1.85	2.20	3.80	1.85
18x4	.80	.95	1.80	.95	1.15	2.00	.95		30x8	1.70	2.10	3.90	2.10	2.45	4.30	2.10
18x5	.85	1.05	1.95	1.05	1.25	2.15	1.05		30x10	1.90	2.30	4.35	2.30	2.75	4.80	2.30
18x6	1.00	1.20	2.25	1.20	1.45	2.50	1.20									
18x8	1.15	1.45	2.70	1.45	1.70	2.95	1.45		36x4	1.65	2.00	3.75	2.00	2.40	4.15	2.00
18x10	1.35	1.65	3.10	1.65	1.95	3.40	1.65		36x5	1.70	2.10	3.90	2.10	2.45	4.30	2.10
									36x6	1.75	2.15	4.05	2.15	2.55	4.45	2.15
20x4	.85	1.05	1.95	1.05	1.25	2.15	1.05		36x8	1.90	2.30	4.35	2.30	2.75	4.80	2.30
20x5	.90	1.10	2.10	1.10	1.35	2.30	1.10		36x10	2.15	2.65	4.95	2.65	3.15	5.45	2.65
20x6	1.10	1.35	2.55	1.35	1.60	2.80	1.35									
20x8	1.30	1.60	3.00	1.60	1.90	3.30	1.60									
20x10	1.45	1.75	3.30	1.75	2.10	3.65	1.75									

Tables Continued in Opposite Columns.



# Independent Wrought Steel Registers

The Faces of Perforated Metal

List Prices Continued

To Fit Stackhead Size: (Horizontal Dimension First) Inches	Open (Free) Area Sq. in.	11 No. 137 WALL REGISTER NO FRAME			12 No. 137 WALL REGISTER WITH WO FRAME			13 No. 137-BO BASEBOARD REGISTER NO FRAME			14 No. 137-BO BASEBOARD REGISTER WITH WO FRAME		
		Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze	Black Japanned or Prime Coat	White Japanned, Oak, or Lacquered Finishes	Electro Plated Ox. Copper Nickel Brass Bronze
8x4	18	\$1.10	\$1.25	\$1.95	\$1.30	\$1.45	\$2.15	\$1.25	\$1.40	\$2.05	\$1.45	\$1.60	\$2.25
8x6	27	1.25	1.40	2.15	1.45	1.60	2.35	1.40	1.55	2.30	1.69	1.75	2.50
10x4	23	1.15	1.30	2.00	1.35	1.50	2.20	1.30	1.45	2.15	1.50	1.65	2.35
10x5	30	1.20	1.40	2.15	1.40	1.60	2.35	1.40	1.55	2.30	1.69	1.75	2.50
10x6	34	1.25	1.45	2.20	1.45	1.65	2.40	1.45	1.60	2.35	1.65	1.80	2.55
10x8	46	1.40	1.55	2.40	1.65	1.80	2.65	1.55	1.75	2.60	1.80	2.00	2.85
12x4	28	1.25	1.40	2.15	1.45	1.60	2.35	1.40	1.55	2.30	1.60	1.75	2.50
12x5	36	1.35	1.50	2.35	1.60	1.75	2.60	1.50	1.70	2.50	1.75	1.95	2.75
12x6	42	1.40	1.55	2.40	1.65	1.80	2.65	1.55	1.75	2.60	1.80	2.00	2.85
12x8	56	1.50	1.70	2.60	1.75	1.95	2.85	1.70	1.90	2.80	1.95	2.15	3.05
12x9	56	1.60	1.80	2.80	1.90	2.10	3.10	1.80	2.05	3.00	2.10	2.35	3.30
12x10	73	1.85	2.10	3.20	2.15	2.40	3.50	2.10	2.30	3.45	2.40	2.60	3.75
14x4	32	1.25	1.45	2.20	1.45	1.65	2.40	1.45	1.60	2.35	1.65	1.80	2.55
14x5	43	1.40	1.55	2.40	1.65	1.80	2.65	1.55	1.75	2.60	1.80	2.00	2.85
14x6	49	1.50	1.70	2.60	1.75	1.95	2.85	1.70	1.90	2.80	1.95	2.15	3.05
14x8	65	1.60	1.80	2.80	1.90	2.10	3.10	1.80	2.05	3.00	2.10	2.35	3.30
14x10	85	2.05	2.35	3.60	2.40	2.70	3.95	2.35	2.60	3.85	2.70	2.95	4.20
16x4	37	1.35	1.50	2.35	1.60	1.75	2.60	1.50	1.70	2.50	1.75	1.95	2.75
16x5	49	1.45	1.65	2.55	1.70	1.90	2.80	1.65	1.85	2.70	1.90	2.10	2.95
16x6	56	1.60	1.80	2.80	1.90	2.10	3.10	1.80	2.05	3.00	2.10	2.35	3.30
16x8	75	1.85	2.10	3.20	2.15	2.40	3.50	2.10	2.30	3.45	2.40	2.65	3.75
16x10	98	2.20	2.45	3.80	2.55	2.85	4.20	2.45	2.75	4.10	2.85	3.15	4.45
18x4	42	1.40	1.55	2.40	1.65	1.80	2.65	1.55	1.75	2.60	1.80	2.00	2.85
18x5	55	1.50	1.70	2.60	1.75	1.95	2.85	1.70	1.90	2.80	1.95	2.15	3.05
18x6	64	1.75	1.95	3.00	2.05	2.25	3.30	1.95	2.20	3.25	2.25	2.50	3.55
18x8	85	2.05	2.35	3.60	2.45	2.70	3.95	2.35	2.60	3.85	2.70	2.95	4.25
18x10	111	2.35	2.65	4.10	2.75	3.10	4.50	2.65	2.95	4.40	3.10	3.40	4.80
20x4	47	1.50	1.70	2.60	1.75	1.95	2.85	1.70	1.90	2.80	1.95	2.15	3.05
20x5	62	1.60	1.80	2.80	1.90	2.10	3.10	1.80	2.05	3.00	2.10	2.35	3.30
20x6	71	1.95	2.20	3.40	2.30	2.55	3.75	2.20	2.45	3.65	2.55	2.80	4.00
20x8	95	2.30	2.60	4.00	2.70	3.00	4.40	2.60	2.90	4.30	3.00	3.30	4.70
20x10	124	2.55	2.85	4.40	2.95	3.30	4.85	2.85	3.20	4.75	3.30	3.65	5.15
22x4	52	1.60	1.80	2.80	1.90	2.10	3.10	1.80	2.05	3.00	2.10	2.30	3.30
22x5	68	1.75	1.95	3.00	2.05	2.25	3.30	1.95	2.20	3.25	2.25	2.50	3.55
22x6	78	2.05	2.35	3.60	2.40	2.70	3.95	2.35	2.60	3.85	2.70	2.95	4.20
22x8	104	2.40	2.75	4.20	2.85	3.15	4.60	2.75	3.05	4.50	3.15	3.45	4.95
22x10	136	2.65	3.00	4.60	3.10	3.45	5.05	3.00	3.35	4.95	3.45	3.80	5.40
24x4	57	1.75	1.95	3.00	2.05	2.25	3.30	1.95	2.20	3.25	2.25	2.50	3.55
24x5	74	1.85	2.10	3.20	2.15	2.40	3.50	2.10	2.30	3.45	2.40	2.60	3.75
24x6	86	2.20	2.45	3.80	2.60	2.85	4.20	2.45	2.75	4.10	2.85	3.15	4.50
24x8	114	2.55	2.85	4.40	3.00	3.30	4.85	2.85	3.20	4.75	3.30	3.65	5.20
24x10	149	2.75	3.10	4.80	3.25	3.60	5.30	3.10	3.50	5.15	3.60	3.95	5.65
26x4	62	1.85	2.10	3.20	2.15	2.40	3.50	2.10	2.30	3.45	2.40	2.65	3.75
26x5	81	1.95	2.20	3.40	2.30	2.55	3.75	2.20	2.45	3.65	2.55	2.80	4.00
26x6	93	2.30	2.60	4.00	2.70	3.00	4.40	2.60	2.90	4.30	3.00	3.30	4.70
26x8	124	2.75	3.10	4.80	3.25	3.60	5.30	3.10	3.50	5.15	3.60	3.95	5.65
26x10	162	3.00	3.40	5.20	3.50	3.90	5.70	3.40	3.75	5.60	3.90	4.30	6.10
28x4	67	1.95	2.20	3.40	2.30	2.55	3.75	2.20	2.45	3.65	2.55	2.80	4.00
28x5	87	2.20	2.45	3.80	2.55	2.85	4.20	2.45	2.75	4.10	2.85	3.15	4.45
28x6	100	2.55	2.85	4.40	2.95	3.30	4.85	2.85	3.20	4.75	3.30	3.65	5.15
28x8	134	2.75	3.10	4.80	3.25	3.60	5.30	3.10	3.50	5.15	3.60	3.95	5.65
28x10	175	3.20	3.65	5.60	3.80	4.20	6.15	3.65	4.05	6.00	4.20	4.60	6.60
30x4	72	2.15	2.45	3.75	2.50	2.80	4.10	2.45	2.70	4.00	2.80	3.05	4.35
30x5	93	2.30	2.60	4.00	2.70	3.00	4.40	2.60	2.90	4.30	3.00	3.30	4.70
30x6	107	2.65	3.00	4.60	3.10	3.45	5.05	3.00	3.35	4.95	3.45	3.80	5.40
30x8	143	3.00	3.40	5.20	3.50	3.90	5.70	3.40	3.75	5.60	3.90	4.25	6.10
30x10	179	3.35	3.75	5.80	3.95	4.35	6.40	3.75	4.20	6.25	4.35	4.80	6.85
36x4	86	2.90	3.25	5.00	3.40	3.75	5.50	3.25	3.65	5.40	3.75	4.15	5.90
36x5	113	3.00	3.40	5.20	3.50	3.90	5.70	3.40	3.75	5.60	3.90	4.30	6.10
36x6	130	3.10	3.50	5.40	3.65	4.05	5.95	3.50	3.90	5.80	4.05	4.45	6.35
36x8	173	3.35	3.75	5.80	3.90	4.35	6.40	3.75	4.20	6.25	4.35	4.80	6.80
36x10	226	3.80	4.30	6.60	4.45	4.95	7.25	4.30	4.80	7.10	4.95	5.45	7.75





INSTALLATION SUGGESTIONS

FOR

**SUNBEAM**

AIR CONDITIONING SYSTEMS

●  
ENG.-5-G

COPYRIGHT 1936

**THE FOX FURNACE COMPANY**  
ELYRIA, OHIO

*A Division of*  
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION



## INSTRUCTIONS FOR INSTALLING SUNBEAM AIR CONDITIONING SYSTEMS

WARM AIR PLENUM - On the top of all Sunbeam Air Conditioning Units a warm air plenum or mixing chamber should be constructed. This chamber must be the same size as the air discharge opening of the unit. The plenum can extend to within two inches of the joist and should be insulated on top with not less than one inch of air cell asbestos or equal. Figure No. 1 on Page 4, shows how the plenum chamber should attach to the unit. (Note the type of joint used). This chamber is not a part of the equipment furnished by manufacturer, and must be constructed by the heating contractor.

With single or individual duct installations where separate heat pipes are to be run from the unit to each register the pipes should be attached to a plenum chamber.

WARM AIR DUCTS - For the most satisfactory results, we recommend that all warm air ducts be attached to the warm air plenum or mixing chamber. The heat ducts should connect to the plenum chamber as near the top as possible and run parallel with the basement ceiling. It is advisable when making the main duct connection to the plenum chamber to increase the depth of the duct 3" or 4" on the bottom. The fitting should have a length equal to the depth of the main duct maintaining a gradual slope up to the main duct. (See Figure No. 1, Page No. 4).

Round pipe branches may be run from rectangular main ducts if desired. When this method is used the branch connection to the main duct may be made in the same manner as the square or rectangular branches to which a square to round transition fitting may be added. (Figure No. 5, Page 4.) Branch adapters may also be used as shown by the insert on Page 4. Illustration No. 5. When these adapters are used the area at the connection to the main duct should be approximately 50% greater than the area of the branch to be served. The main duct should be reduced after each take off in accordance with dimension "A", No. 5, Page 4. Risers may be taken off the top of main duct in a similar manner.

When rectangular branches are used from the main ducts, care must be taken to provide an ample opening at the branch connection to allow free air flow into the branch.

Figure No. 6, Page 5, provides information required for determining the proper size of opening in the flue and the proper location of the opening.

DAMPERS - Quadrant locking type dampers are to be installed in each main duct where it attaches to the plenum chamber.

Two types of dampers are satisfactory for branch ducts. (1) These dampers may be of the quadrant locking type as shown in Figure "A", Illustration No. 11, Page No. 6. (2) Or they may be of the friction type such as is illustrated in Figure "B" No. 11, Page No. 6.

If quadrant dampers are used they must be installed in the branches as near the take-off from the main ducts as practical. Dampers of the type used for gravity systems must not be used as they have no device for locking.

If friction dampers are to be used they must be placed in the risers just below the register faces and faces having vertical openings should be used to make dampers accessible for balancing. Style 321 Sunbeam Registers can be used. Dampers must be hinged to open against the air flow.

A locking type damper is also required for each branch of the return air system. See Illustration No. 8, Page 5, for our recommended methods of installing dampers in return air ducts.

Slide dampers are to be installed in guides nailed to the under side of the sub floor.

The slide must fit firmly and should be provided with a small loop or eyelet for regulating through the intake face or opening.



RETURN AIR DUCTS - It is common practice to use the unlined joist spaces as ducts, unless instructed otherwise on air conditioning plans. By so doing, considerable duct work can be eliminated, thereby permitting lower installation costs. When joist and stud spaces are used as return air ducts, galvanized stops must be installed to close off the end of the spaces thus making them air tight. (See Illustration No. 8, Page 5.) When the same joist space serves more than one intake, the galvanized stop should be at the intake farthest from the unit. See Figures No. 7 and 8 on Page 5.

If objection is raised to, or ordinances prohibit, the use of unlined joist and stud spaces as ducts, galvanized ducts having the specified free areas may be used.

Metal ducts must be used for return air in outside walls. The return air riser from the blower compartment to the return air duct at the basement ceiling should be the same size as the Air Intake opening of the blower compartment.

ELBOWS, ANGLES AND FITTINGS - Wherever it is necessary to change the elevation of heat and return ducts, any changes in elevation should be made as near a 30° angle from the horizontal as possible.

Long sweeping curves are preferred wherever changes in directions of pipes and ducts occur.

All warm air and return air connections to risers must be made with free flowing elbows or transition fittings. (See Page 8).

BATHROOM VENTS - We have found that bathrooms sometimes become airbound when the doors are closed, with the result that the air flow is so retarded that the rooms do not properly heat. To overcome this difficulty we recommend that vents be installed in the bathrooms. The vent faces are to be installed in the baseboard, and exhaust into the attic, using the stud space as a duct. See Figure No. 12, on Page 6.

Where installation cost is of primary importance, it is possible to eliminate vent installations by allowing a 1" clearance on the bottom of the bathroom door to provide means of recirculation.

WARM AIR REGISTERS - Warm air registers can be installed either in the baseboard as shown in Figure No. 9 on Page 5, or in the plaster above the baseboard as shown in Figure No. 10.

Wherever building construction will permit, we recommend that bathroom registers be placed 1 foot below the ceiling.

Register dimensions shown on our plans are based on the free area obtainable in Styles 311, 311A, 321 or 321A Sunbeam Registers. These registers have been selected because of the large free areas obtainable which permit the use of smaller and neater appearing registers.

RETURN AIR REGISTERS AND GRILLS - All return air intakes should match the warm air registers and must be installed with the bottoms flush with the floor as shown in Figure No. 9, on Page 5, if they are to be placed in the baseboard. Floor returns can be used if desired, though we believe the baseboard installation presents the better appearance.

All return air registers in bedrooms are to be equipped with louvers which can be closed when the windows are opened. These registers have also been sized from the Register catalog.

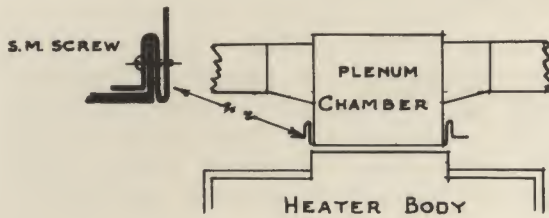
FRESH AIR DUCTS - Sometimes we are called upon to design a system where a large volume of air is to be exhausted from the building. In such cases, it is necessary to bring into the building air from outside to replace that exhausted. For our recommended method of making this fresh air intake, we refer you to Figure No. 16, on Page 6.

REPLACEMENT JOBS - When an air conditioning system is to be installed in an existing building where old registers, risers or pipes are to be used, any such material should be thoroughly vacuum cleaned or washed.



1.

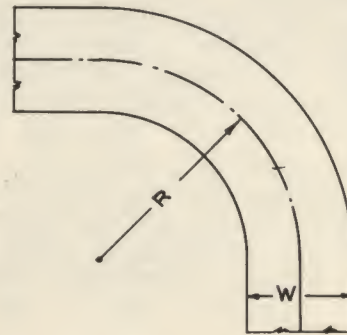
### DETAIL OF PLENUM CHAMBER



Paint inside of plenum with water-proof paint.  
Construct joint as shown.

2.

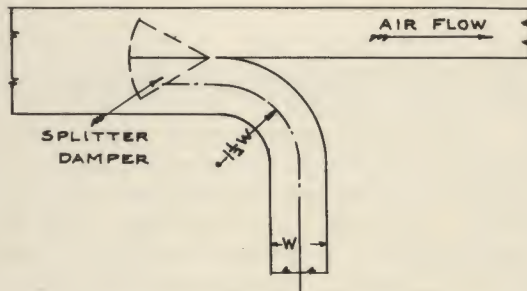
### ALL ELBOWS ROUND OR SQUARE



"R" (Minimum) = W  
"R" (Best) =  $1\frac{1}{2}$  W

3.

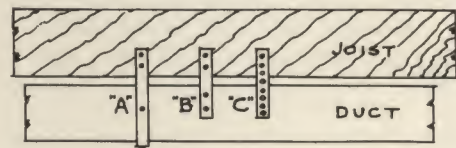
### TYPICAL DAMPER REQUIREMENT



To be used where main duct separates into two ducts.

4.

### TYPICAL STRAP HANGERS



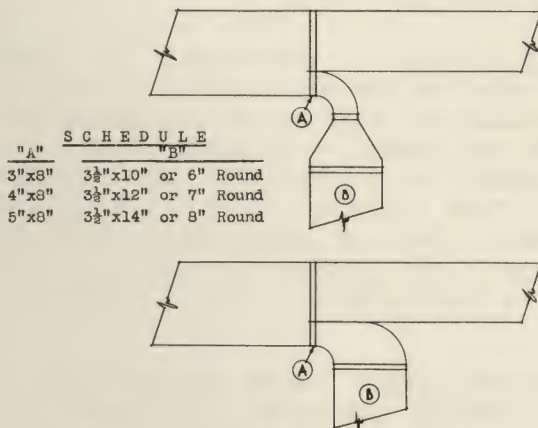
Use one inch heavy gauge iron.  
"A" Best - Turn under bottom and fasten.

"B" Satisfactory

"C" Satisfactory

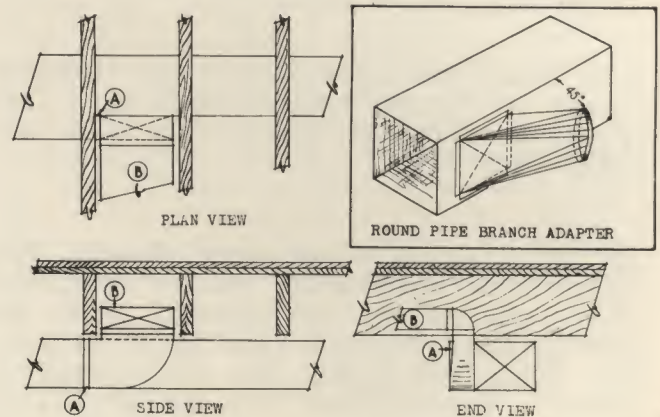
Must be galvanized or painted.

5.



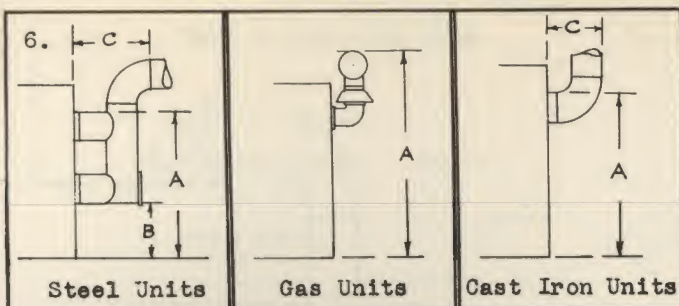
SCHEDULE	
"A"	"B"
3"x8"	3½"x10" or 6" Round
4"x8"	3½"x12" or 7" Round
5"x8"	3½"x14" or 8" Round

TYPICAL BRANCH CONNECTIONS  
FOR BELOW JOIST INSTALLATIONS.  
SEE PAGE No.7



TYPICAL BRANCH CONNECTIONS  
FOR INSTALLATION BETWEEN JOISTS  
SEE PAGE No.7.





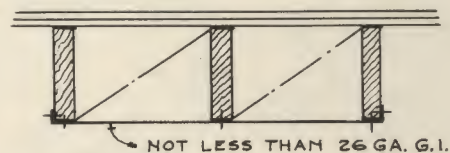
#### SMOKE PIPE AND VENT PIPES

UNIT	DIAMETER	A	B	C*
4420	9"	50 1/4"	-	15"
4620	9"	50 1/4"	-	15"
5220	10"	54 1/4"	-	16"
5620	10"	54 1/4"	-	16"
2280	9"	46 1/4"	17 1/4"	23 1/2"
2480	9"	46 1/4"	17 1/4"	23 1/2"
2780	10"	48 1/4"	18 1/4"	23 1/2"
3080	10"	49 1/4"	18 3/4"	23 1/2"
3480	10"	50 1/4"	18 3/4"	23 1/2"
5520	8"	-	20 3/4"	14"
5522	8"	-	20 3/4"	14"
5524	8"	-	20 3/4"	14"
5527	9"	-	19 1/2"	15"
24S & SU	9"	47 3/4"	-	15"
27S & SU	9"	48 3/4"	-	15"
124	9"	-	22"	21 1/2"
224	9"	-	22"	21 1/2"
424	9"	-	25 1/4"	21 1/2"
434	10"	-	27 1/4"	16"
634	10"	-	27 1/4"	16"
720R	8"	-	19 7/8"	14"
M2	6"	55 1/4"	-	-
M3	6"	55 1/4"	-	-
M4	7"	56 1/4"	-	-
M5	8"	57 1/4"	-	-
D2	6"	63 7/8"	-	-
D3	7"	64 7/8"	-	-
D4	8"	65 7/8"	-	-
D5	9"	66 7/8"	-	-

\*NOTE:—"C"—Measurements allow for an elbow.  
All dimensions are approximate and allowance must be made for assembly.

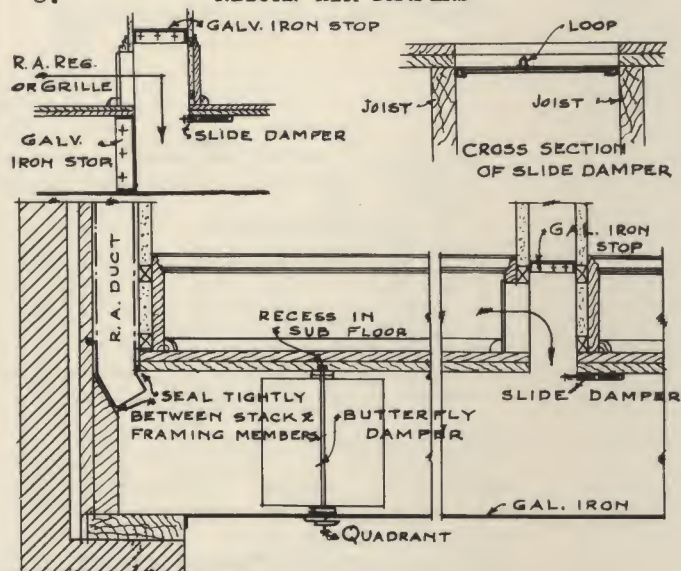
7.

#### RETURN AIR JOISTS



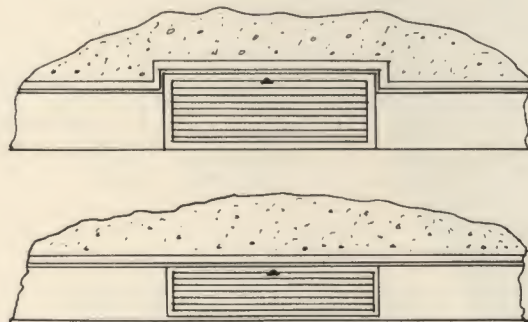
All cross bracing to be removed and bottom sheet to be sealed and nailed as shown. Where beams project into R. A. space free area must be maintained by duct under beam carrying necessary air.

#### 8. RETURN AIR DAMPERS



9.

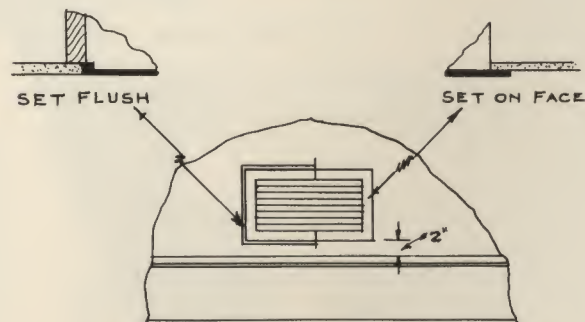
#### TYPICAL VIEWS OF W.A. REGISTERS AND R.A. GRILLES IN BASEBOARD



All R.A. grilles in bedrooms to have dampers at face or in wall just below grille. In latter case short duct extension to be used.

10.

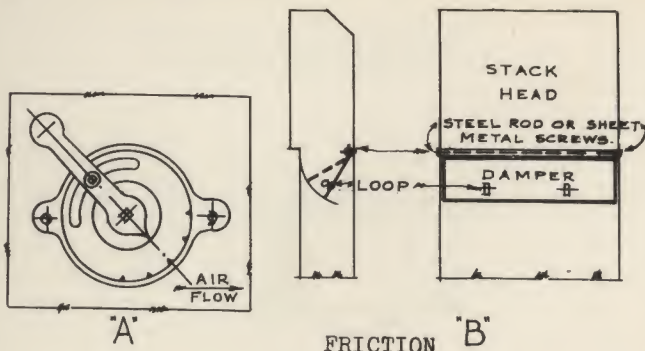
#### TYPICAL REGISTER ABOVE BASEBOARD



"Flush" type used with plaster frame or special register box. "Set on Face" type must be carefully sealed against leaks around frame.



# 11. RECOMMENDED DAMPERS FOR BRANCH DUCTS

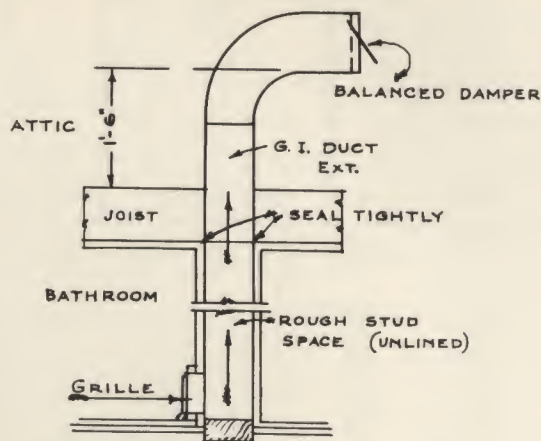


## QUADRANT

Install with handle parallel to damper.

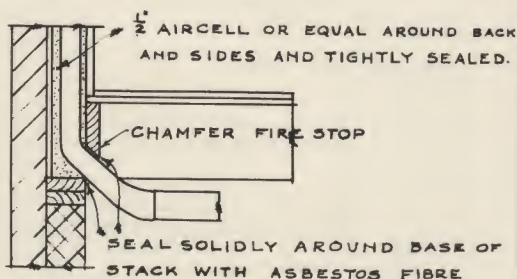
Damper to have 1/2" flange on each side forming firm contact with sides of stack-head. Hinge damper directly opposite the bottom of register opening.

# 12. BATH ROOM RELIEF VENT



To be provided for all bath rooms.

# 13. OUTSIDE WALL STACK INSULATION



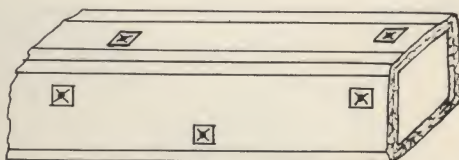
Carry insulation unbroken from stack head to basement pipe connection where insulation can be applied on three sides only, the front is to be sealed tightly with asbestos paper.

# 14. INSTALLATION OF QUADRANT



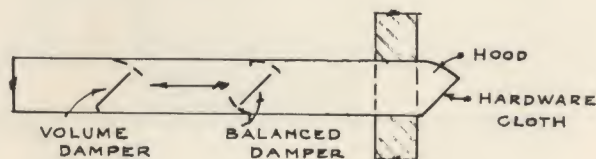
Install damper and rod before insulating and notch end of rod. After insulation and canvas are on, crush covering at rod and fasten quadrant through covering, making a neat, smooth depression. For round and rectangular ducts and branches.

# 15. INSULATION - DUCTS AND STACKS



Use air cell board, overlapping corners and stripping corners and joints with asbestos paper. If canvas is to be used trowel over depressions made by pulling up screws in large washers. Makes very neat finish.

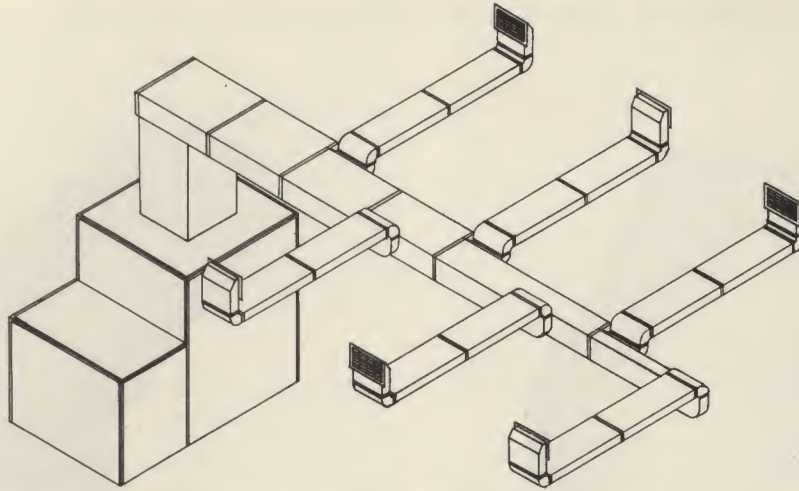
# 16. DETAIL OUTSIDE AIR DUCT



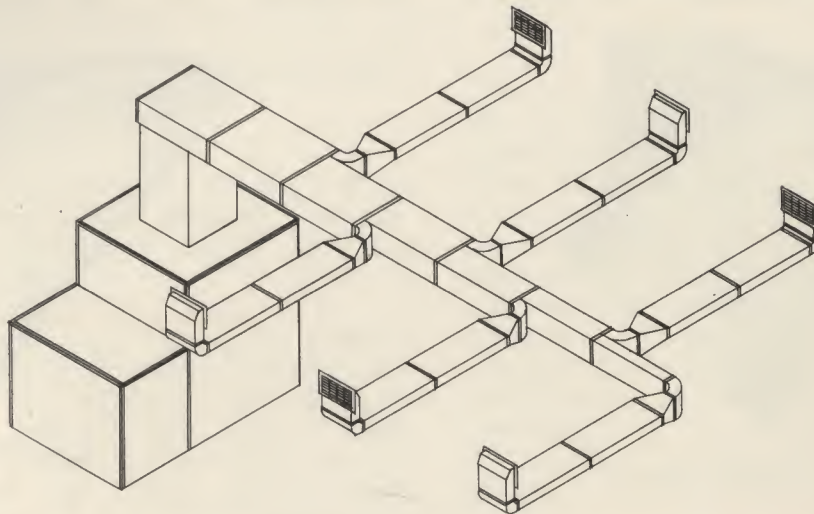
Paint hood and 12" of duct with asphaltum or other weatherproof paint.



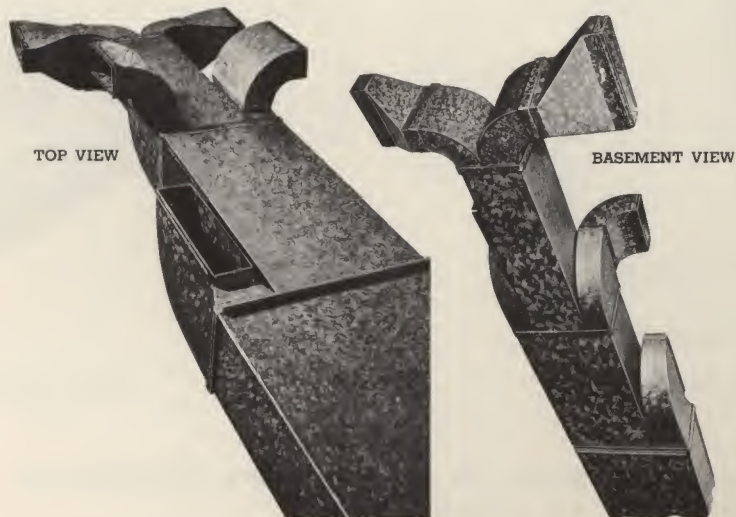
# TYPICAL STANDARDIZED DUCT INSTALLATIONS



DETAIL SHOWING ARRANGEMENT OF BRANCHES FOR INSTALLATION IN JOIST SPACES



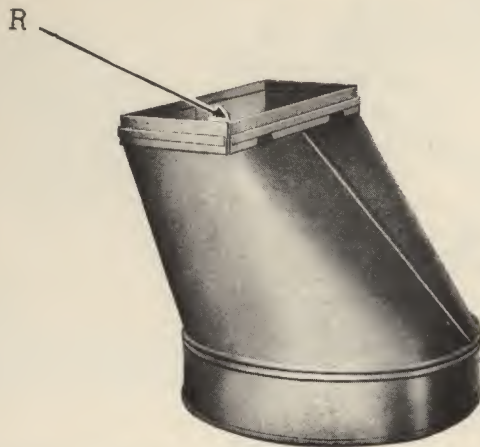
DETAIL SHOWING ARRANGEMENT OF BRANCHES RUNNING BELOW JOISTS



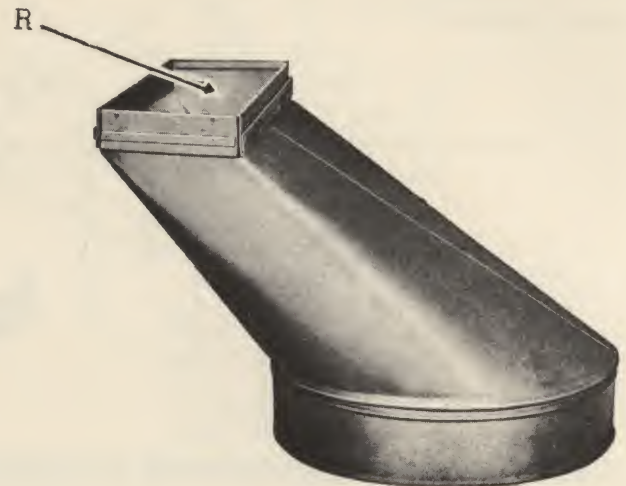
PHOTOGRAPHIC VIEWS OF TYPICAL STANDARDIZED DUCT ASSEMBLY



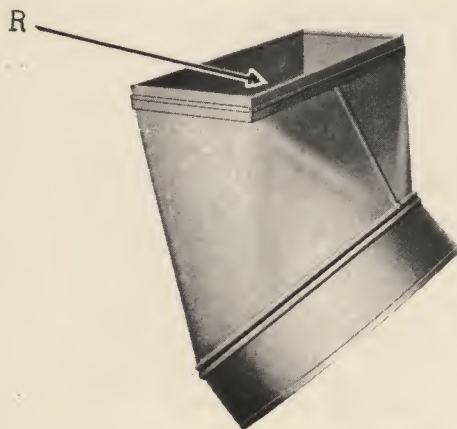
FRictionless BOOTS RECOMMENDED  
for  
SUNBEAM AIR CONDITIONING INSTALLATIONS



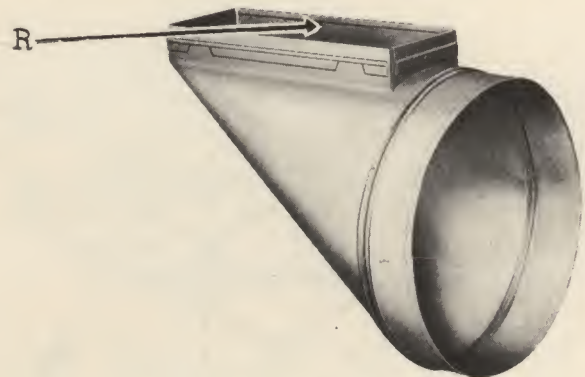
Universal Boot



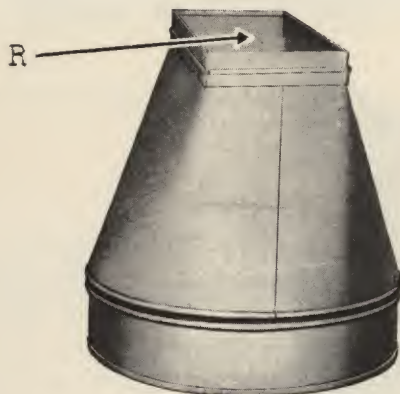
4" Boot Offset



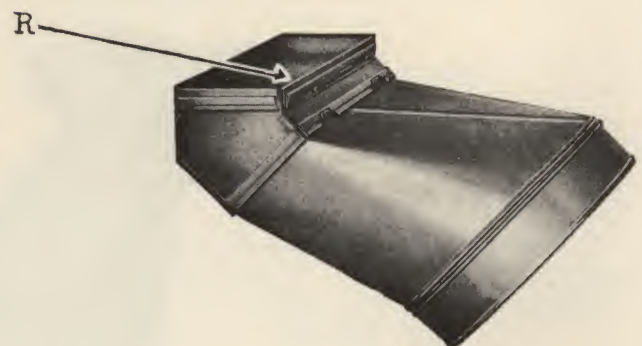
Angle Boot



Center Boot



Center Boot



Universal Boot with  
45° angle

Note:- "R" dimensions must be of the same dimensions as that of the riser to which it connects.



## OUTSIDE AIR DUCTS FOR SUMMER EVENING COOLING

The outside air of summer evenings is usually several degrees cooler than the inside of a building after the sun goes down. Therefore, we recommend that an outside air duct be attached to the blower compartment of the Sunbeam Air Conditioning Unit for use in drawing into the unit and circulating throughout the various rooms this cooler night air.

In the daytime this lower temperature in the house can frequently be maintained by keeping doors and windows closed; shades and shutters drawn; and awnings down over windows, to exclude the outside heat. During the daytime the damper in outside air duct should be closed so that only air within the house will be circulated by the blower.

The sketch on the following page shows how this duct should be attached to the unit and other details of construction.

This outside air duct is not essential to winter air conditioning unless garages are heated or several rooms vented, and if the owner does not wish to invest the small extra cost entailed for this added comfort, it can be left off entirely. If the owner is interested and does not wish the outside air duct right away it can be added at any future date. If future installation is to be made, we suggest that a collar be provided on the return air plenum and capped until such time as the outside air duct is to be added.

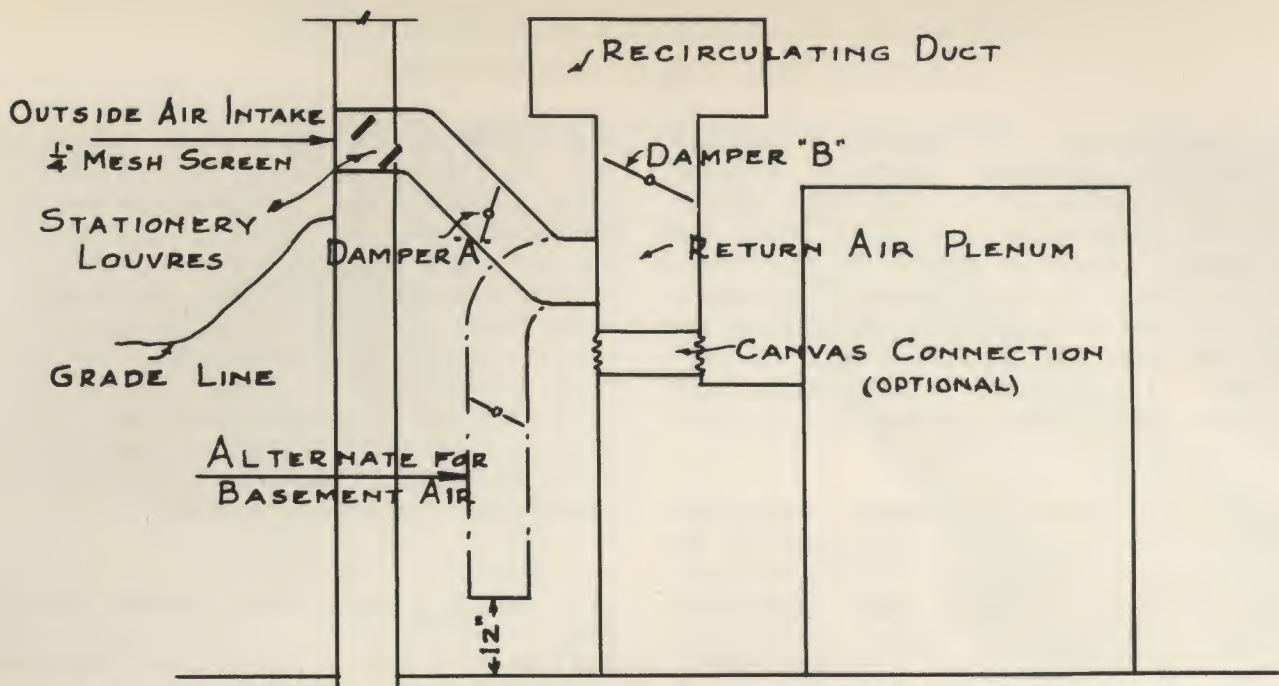
The dampers "A" and "B", (Page 10) can be either manually or automatically controlled. Manual control is accomplished by means of quadrants on the side of the ducts. Automatic control is accomplished by means of G-3x Combinations (see price list), using damper motors on the duct dampers and a push button switch at a convenient location on the first floor. An additional push button switch should also be installed to start and stop the blower.

The dampers must be attached to the damper motors so that when the switch is off, damper "A" will be closed and damper "B" will be open.

The outside air duct must not be open during winter operation, for by leaving this duct open the cold outside air is drawn in and the fuel cost will be increased unnecessarily as all air drawn in must be heated. However, in cases when garages are heated and several vents are installed, provision must be made to supply the air thus exhausted. This provision can be made by providing openings in the damper of the number of square inches specified on the plans.

When garages are heated and several vents are used, an outside air duct must be provided (if the duct for summer cooling is not installed). An outside air duct is necessary in this case and cannot be dispensed with.





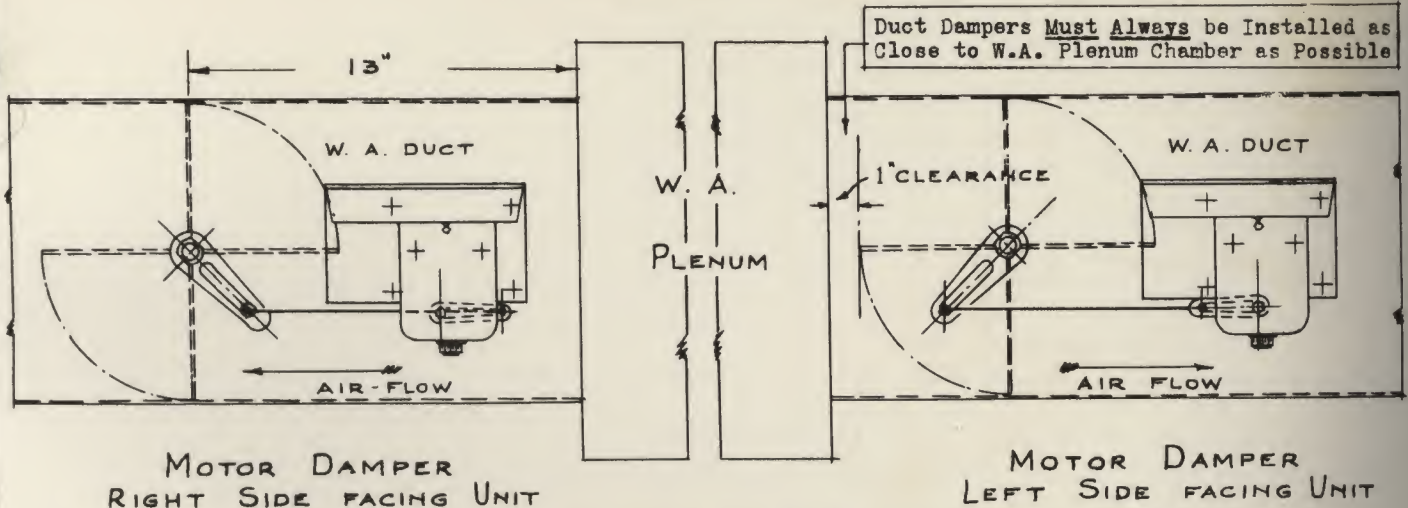
Damper "A" open for outside air, Damper "B" closed.  
 Damper "B" open for recirculation, Damper "A" closed.

SQUARE INCH FREE AREA REQUIRED FOR  
SUMMER OUTSIDE AIR DUCTS

<u>UNITS</u>		<u>Square Inch Free Area</u>
5520	- M-2	166
4420	- 5522 - M-3	202
4820	- 5524	238
5220	- 5527 - M-4	280
5620	- M-5	324
2280		208
2480	- D-2	238
2780	- 24S - 24SU - D-3	330
3080	- 27S - 27SU - D-4	396
3480	- D-5	475
224 - 124 - 424 - 12" Blower		240
224 - 124 - 424 - 15" Blower		396
720-R		202
434 - 634 - 15" Blower		350
434 - 634 - 18" Blower		527
434 - 634 - 21" Blower		600



# ZONE CONTROL DAMPER INSTALLATION



Zone Control dampers must close tightly to satisfactorily regulate a system in which this type of control is used.

We recommend that the damper blade be made of 14 gauge iron with a border of felt securely riveted.

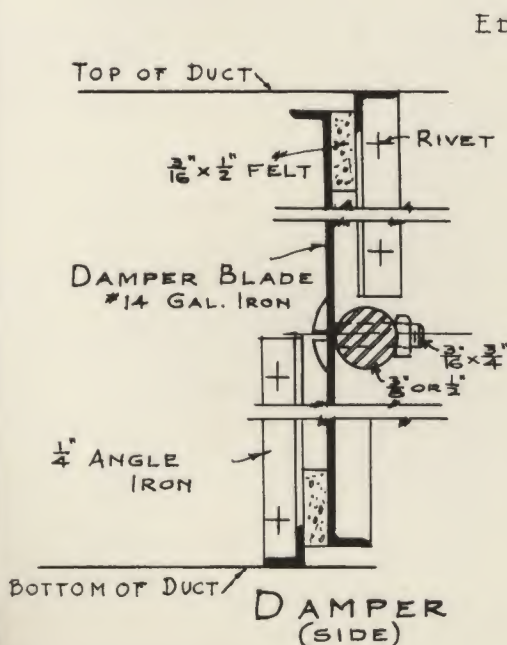
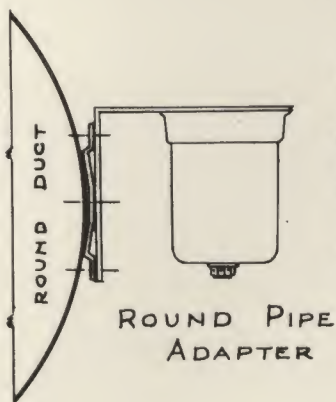
Inside the duct in which the damper is to be installed  $\frac{1}{4}$ " angle iron frames should be installed which will form stops for the damper blade. The frames must be offset so that the damper blade will fit tightly against the stop at all points when closed.

The damper blade must clear the side of the duct by  $\frac{1}{8}$ " on all sides and spacers should be used to maintain this clearance.

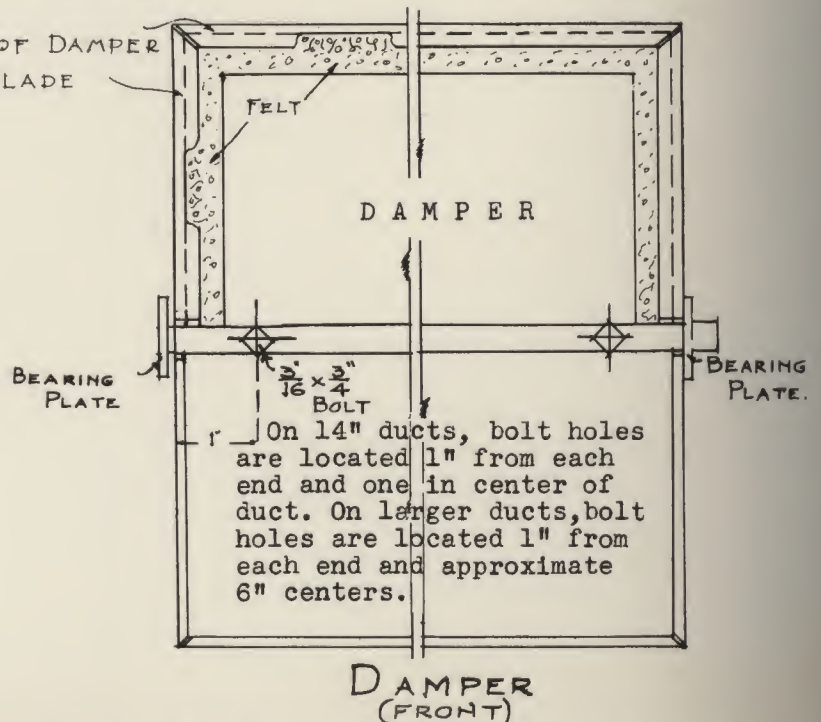
The Fox Furnace Company furnishes:

Duct Damper Motor  
Duct Damper Motor Mounting Bracket  
Push Rod  
Duct Damper Lever Arm

Ball Joints  
Motor Crank Arm  
Nuts & Sheet Metal Screws  
Round Pipe Adapter



EDGE OF DAMPER  
BLADE



NOTE: - TO INSURE A PERFECT FIT OF THE DAMPERS, IT IS RECOMMENDED THAT THE DAMPER BE FITTED TO THE DUCT IN THE SHOP, RATHER THAN ON THE JOB.







# SUNBEAM AIR CONDITIONING SYSTEM

## SPECIFICATIONS No. 36 F

1. **HEATING:** The heating shall be accomplished by a Sunbeam Air Conditioning Unit manufactured by The Fox Furnace Company, installed by contract with the "Heating Contractor" who will be responsible for and be governed by this specification.
2. **NOTICE TO ARCHITECT OR PURCHASER:** The attention of the architect or purchaser is directed to that section of this specification indicating work to be done by others.
3. **ERECTION:** The Sunbeam Unit and motor shall be set on level foundations provided by others, located as shown on heating plans. The casing and blower base shall be grouted in place.
4. **MAIN WARM AIR DISTRIBUTING DUCTS:** Shall be constructed entirely of galvanized iron. Round ducts shall be lapped 2 inches and be not less than 26-gauge. Rectangular ducts shall be in accordance with the following table:

Gauge	Width of Duct	Seam	Reinforced Seam
28	Up to 12 inches	1 in.	.....
26	13 in. to 18 in.	1 in.	.....
24	19 in. to 30 in.	1 in.	1/8 in. x 1 in.
22	31 in. to 48 in.	1 in.	1/8 in. x 1 in.
22	49 in. to 60 in.	1 1/2 in.	1/8 in. x 1 1/8 in.
20	61 in. to 90 in.	1 1/2 in.	1/8 in. x 1 1/8 in.

Where ducts pass through walls or partitions, the opening shall clear the metal of the duct by 1 inch. Wherever it is necessary to make a change in the elevation of a duct the change should be made as near a 30° angle from the horizontal as possible.

5. Where a plenum chamber is used for distribution it shall be constructed entirely of 24-gauge galvanized iron, with 1/2-inch standing seams, or angle irons, to give rigidity, and be painted on the inside with a waterproof paint. Top of plenum chamber shall be not nearer than 2 inches to underside of joists and shall be insulated with 1 inch of air-cell asbestos or equal.
6. Collars for attaching branch ducts to main ducts shall be not less than 26-gauge and shall be fastened firmly in place.
7. Where rectangular main ducts and round branches are used, collars shall connect at an angle of 45 degrees with the direction of flow and shall extend into the duct to act as scoops, the long side of the extension to be equal to one duct diameter. Where rectangular or square branches are used the branch shall be taken off full size on a 1 1/2 Radius and the trunk line reduced in size as indicated on plans.
8. **WARM AIR BRANCHES:** Rectangular branches shall be made to conform with the table in paragraph 4. Round branches to be made of 26-gauge galvanized iron. Branches shall be made with locked seams on sides. End joints shall be lapped not less than 1 1/4 inches. All lapped joints shall be soldered, riveted, or securely fastened with metal screws. Where branches pass through walls or partitions, the opening shall clear the metal of the branch by 1 inch, and openings shall be sealed with asbestos cement or tight fitting collar. Wherever it is necessary to make a change in the elevation of a horizontal duct the change should be made as near a 30° angle from horizontal as possible.
9. **WARM AIR DAMPERS:** Volume dampers shall be installed in each main duct near its origin at plenum chamber, except when motor operated dampers are used for zone control in which case motor operated dampers will take the place of volume dampers. Dampers shall also be placed in all warm air branches near their connection to the main ducts, or, tight fitting friction dampers shall be placed in each stack head. Special dampers shall be provided where indicated on drawings. All dampers located in the trunks or branches shall be of locking type with indicator dial properly attached.
10. **WARM AIR FITTINGS:** Single or double fittings may be used conforming with local code. Gauge of single fittings to conform with table in paragraph No. 4. Connections between warm air branches and risers shall be made with the best type of transition fittings which building construction clearances will permit. In no case will abrupt tapping of branch in riser be acceptable.
11. **WARM AIR STACKS OR RISERS:** Single or double wall stacks may be used. Gauge of single wall stacks to conform with table in paragraph No. 4. Stacks shall be supported by metal straps to the adjoining building members, and braced to prevent reduction of the full free area. Stacks are to be soldered or otherwise securely fastened at the joints to prevent separation.
12. **RETURN AIR DUCTS:** Return air may be conducted by means of unlined stud or joist spaces unless otherwise shown on drawings. When such spaces are used they shall be tightly closed with galvanized iron stops, not lighter than 26-gauge, immediately above the return air register face and at all points where joist spaces or other openings meet the spaces used for conducting the air to the blower compartment. Metal ducts connecting to stud or joist spaces shall be securely attached to such spaces by means of galvanized iron collars, not lighter than 26-gauge. Galvanized iron stops and collars are to be fastened to adjoining wood members by means of nails or screws spaced not more than 1 1/2 inches apart. Sheet metal ducts shall be used to convey return air through outside wall areas.  
Where return air ducts are constructed of galvanized iron they shall be made to conform with the table in paragraph 4, and no wood or other material shall enter into their construction. Longitudinal seams shall be of lock type. All lateral seams and joints shall be of standing type or equal for adding stiffness to duct. Where such seams are more than 4 feet apart, reinforcing angles made of folded 24-gauge galvanized iron shall be securely riveted to the duct at intermediate positions. As an alternate for stiffening ducts, cross-braking the plates may be employed. Wherever it is necessary to make a change in the elevation of a horizontal duct the change should be made as near a 30° angle from horizontal as possible. All joints shall be tightly sealed.
13. **RETURN AIR DAMPERS:** Volume dampers shall be installed in each main return air duct near the blower compartment. Dampers shall be provided in all return air branches near their connection to main ducts. All dampers shall be of locking type with indicator dial properly attached.
14. **SUPPORTS:** Supports for all ducts and branches shall consist of 1-inch straps of heavy gauge iron securely fastened to ducts and branches with sheet metal screws, bolts or rivets and neatly attached to joists or other framing members at intervals of not less than 8 feet.



## SPECIFICATIONS No. 36 F (Continued)

15. **REGISTERS AND GRILLES:** Warm air outlets and return air intakes shall be of sizes shown on plans, or of such make and design that will provide not less than the free or open area specified.
16. Warm air registers of the single valve type shall be installed in the baseboard or in the plaster approximately 2 inches above the baseboard, unless otherwise specified. Whenever possible the bathroom warm air registers should be located approximately one foot below the ceiling. Registers shall be of prime coat finish unless otherwise specified.
17. Return air registers of the single valve type, or grills as indicated on the drawings shall be installed in the baseboard with bottom flush with the floor, or in the floor. When registers are used in the floor the multiple valve type should be used. Return air intakes from bed rooms must have registers which can be closed when the windows are opened. Grilles for bathroom vents must be placed at the floor level and provided at top with automatic balanced back draft louvers. Recirculation from rooms in which no return air register or grill or vent has been placed is to be obtained by allowing the door to stand ajar or by a one (1) inch clearance under the door. Registers and grilles shall be prime coat finish unless otherwise stated.
18. When garage heat is provided the heat outlet shall be located not less than 7 feet above garage floor line and shall be provided with automatic, balanced back draft louvers to prevent syphoning of garage air into other portions of the heating system. Return air must not be taken from garages. To replace the air delivered to the garage or vented rooms an outside air intake of size specified on drawings is provided; the opening to the outside to be covered with hardware cloth and equipped with balanced louvers and a volume damper.
19. All register boxes shall be sealed with caps or covers, while the system is being installed, so that dirt, plaster, shavings etc. cannot settle in the ducts.
20. **INSULATION:** Warm air ducts in unheated basement space shall be insulated with not less than two layers ( $\frac{1}{2}$  inch) of air-cell asbestos or equivalent. Warm air ducts in garages, unheated or unexcavated portions shall be insulated with not less than four layers (1 inch) of air-cell asbestos or equivalent. Special insulation should be applied as indicated on drawings.
21. Where insulated warm air ducts or branches pass through walls or partitions the insulation shall be carried through unbroken.
22. Single stacks and stack heads in interior walls shall be covered with not less than a single thickness of (12 lb. per 100 sq. ft.) asbestos paper securely pasted.
23. Single stacks in outside walls shall be covered on the back and both sides with 2-ply ( $\frac{1}{2}$  inch) of air-cell asbestos or equivalent. Double stacks shall be covered with 1-ply ( $\frac{1}{4}$  inch) air-cell asbestos or equivalent.
24. Cross-overs in joist spaces shall be insulated with one-half inch air cell asbestos or equal, unless these spaces are in immediate contact with the outside wall, attic, garage, unexcavated or similar surface, in which case they shall have one inch covering of air cell asbestos or equal.
25. Double stacks and fittings, in interior walls need not be insulated.
26. Flue pipe shall be insulated with air-cell asbestos, if specified on heating plans.
27. **FLUE PIPE:** There shall be, connected to the flue, a pipe constructed of black or galvanized iron of not less than 24-gauge. Joints in this pipe shall be lapped  $1\frac{1}{4}$  inches. Side seams shall be of lock type. The flue pipe shall be of the same diameter throughout its length as the outlet on the heating unit. Flue pipe must slope up to chimney.
28. Connection at the chimney shall extend to, but not beyond, the inner surface of the flue lining. A damper is to be installed in the flue pipe with coal fired units. No damper is to be installed in flue pipe with gas or oil fired unit.
29. **GENERAL:** All ducts, branches, stacks and fittings are intended to be free flowing, and to this end, shall be constructed according to the drawings with full free area maintained without abrupt angles or obstructions. All warm air and return air openings are to be sealed during construction of building to prevent plaster, wood trimmings, etc., from entering openings. Where stacks or fittings, whether single or double, go through the first floor, openings around such fittings must be filled with plastic asbestos. Filters should be in place when unit is running and building is under construction. All work is to be performed in accordance with local codes.

### The Following Work to Be Done By Others

30. **CLEARANCES:** Unobstructed space shall be provided for the Sunbeam Unit and the distributing system, as shown on the heating plans.
31. **FOUNDATION:** Provide an accurately leveled base or floor of concrete or other non-combustible material for the Sunbeam Unit.
32. **WATER:** With Spray Humidifier provide a "T" connection to water line, near unit, to receive 5/16" copper tubing.
33. **DRAINAGE:** Provide and connect a floor drain to receive the overflow from the Humidifier.
34. **ELECTRICAL:** Provide a circuit direct from meter to the Sunbeam Unit and connect through a safety switch properly fused.
35. **CHIMNEY:** Provide a chimney, to be lined with terra cotta flue lining throughout, and the space between flue lining and brick wall completely filled with cement, and with a single flue pipe opening as shown on the heating plans.
36. **CUTTING AND PATCHING:** Provide all openings and do all cutting and patching as required for the installation of this system, as indicated by the heating plans and specifications.
37. **ATTIC AND FOUNDATION VENTS:** Provide means for closing all foundation and attic vents during heating season.
38. **FIRE-PLACE FLUES:** Equip with dampers and keep closed when fire-place is not in use during heating season.
39. **GAS SUPPLY:** With the Sunbeam Gas Fired Air Conditioning Unit, provide and connect a gas line of the same size as the gas inlet on the Sunbeam Gas Fired Air Conditioning Unit.



---

# ● THE SUNBEAM CONVERSION CHART

*A Quick Method of Calculating (For Cost Estimating Purposes) Sizes of Air Conditioning Units, Ducts, Pipes, Risers and Registers*

---

## FOLLOW THIS PROCEDURE

1. Figure heating requirements either (A) according to Standard Code (see condensed copy on back page) or (B) method followed in calculating radiation.
2. Convert gravity warm air, or radiation, sizes to Air Conditioning sizes by using the Conversion Chart on the inside pages.

### Use the Conversion Chart To Prepare Cost Estimates Make Air Conditioning Layout AFTER Job is Sold

It is expensive to make Air Conditioning layouts for the sole purpose of estimating the installed cost of the system.

In preparing cost estimates for Sunbeam Air Conditioning installations for existing houses of average size, the Sunbeam Conversion Chart should quickly provide you with the sizes that you require, without the time, expense and delay of making a layout. Make the layout: *after* the job is sold; *after* you know the prospect can afford to pay the price demanded; *after* you are certain a layout will give you a reasonable chance to close the sale!

All Sunbeam Air Conditioning Systems must be installed in accordance with a layout which has been made in strict accordance with the latest edition of the Sunbeam Air Conditioning Engineering Manual.

---

**THE FOX FURNACE COMPANY, . . . . Elyria, Ohio**  
**A Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION**

**SUNBEAM**  
**AIR CONDITIONING UNIT**



# CONVERSION CHART

AIR CONDITIONING				GRAVITY		STEAM	VAPOR	HOT WATER	
PIPE	*REGISTERS			Warm Air				Low Pressure	Closed System
	Gravity Type	Forced Air Type	Riser	Sq. In. First Floor	Sq. In. Second Floor	Sq. Ft. Radiation	Sq. Ft. Radiation	Sq. Ft. Radiation	Sq. Ft. Radiation
6"	FIRST FLOOR	10"x4"	3"x10"	34	22	16	17	25	21
		12"x4"	3"x12"	41	27	19	20	30	26
		10"x5"	3"x10"	45	30	21	23	33	29
	10x8 Register	14"x4"	3"x14"	48	32	22	24	36	31
	6½"x10" Throat	12"x5"	3"x12"	56	37	25	28	41	35
		16"x4"	3"x16"	56	37	25	28	41	35
	SECOND FLOOR	10"x6"	3"x10"	57	38	26	29	42	36
		14"x5"	3"x14"	66	43	30	33	48	42
	10x8 Register	12"x6"	3"x12"	70	47	32	35	52	44
	3"x10" Riser	20"x4"	3"x20"	70	47	32	35	52	44
		16"x5"	3"x16"	76	50	35	38	56	48
	7"	FIRST FLOOR	10"x8"	3½"x10"	80	53	37	40	59
12x8 Register		14"x6"	3"x14"	83	55	38	41	61	52
6½"x12" Throat		24"x4"	3"x24"	85	58	39	43	63	54
SECOND FLOOR		20"x5"	3"x20"	95	63	44	48	70	60
12x8 Register		12"x8"	3½"x12"	98	65	45	49	73	62
3½"x12" Riser									
8"	FIRST FLOOR	30"x4"	3"x30"	107	71	49	54	79	67
	12x10 Register	12"x9"	4"x12"	111	73	51	56	82	70
	7½"x12" Throat	14"x8"	3½"x14"	115	76	53	58	85	73
	SECOND FLOOR	24"x5"	3"x24"	115	76	53	58	85	73
	Two Risers and Registers Required	20"x6"	3"x20"	121	80	56	61	89	76
	Use Sizes for 6" Pipe	12"x10"	4½"x12"	126	84	58	63	93	80
		16"x8"	3½"x16"	133	88	61	67	98	84
9"	FIRST FLOOR	30"x5"	3"x30"	143	95	66	72	106	91
	13x11 Register	24"x6"	3"x24"	145	96	67	73	107	92
	9½"x13" Throat	14"x10"	4½"x14"	148	98	68	74	109	94
	SECOND FLOOR	20"x8"	3"x20"	168	112	77	85	124	106
	Two Risers and Registers Required	16"x10"	4½"x16"	171	114	79	86	127	108
	Use sizes for 7" Pipe								
10"	FIRST FLOOR								
	16x14 FLOOR Register	30"x6"	3"x30"	182	121	84	92	135	116
	SECOND FLOOR	24"x8"	3½"x24"	202	134	93	102	150	128
	Two Risers and Registers Required								
	Use sizes for 7" Pipe								
12"	FIRST FLOOR	30"x8"	3½"x30"	255	169	118	128	189	162
	18x18 FLOOR Register	24"x10"	4½"x24"	259	172	120	130	191	164
	SECOND FLOOR								

\*These register sizes are minimum. Larger registers, if now in place, can be used.

Note 1—Register sizes based on a free area of not less than 60 %.

Note 2—Many of the Risers listed above, for registers 4" and 5" high, are oversize. This is because each Riser must be of the same width as the register to which it leads and because we do not advise using a Riser depth of less than three (3) inches.

Note 3—The following are standard commercial size Risers:

3 x 10      3½ x 10      3 x 12      3½ x 12      3½ x 14

## EQUIVALENT FREE AREA CHART FOR SQUARE DUCTS

Round Pipe	SQUARE DUCT REQUIRED						
6"	5"x6½"	6"x5½"	7"x5"	8"x4"	9"x3½"	10"x3½"	12"x3"
7"	5"x8½"	6"x7½"	7"x6½"	8"x5"	9"x4½"	10"x4½"	12"x3½"
8"	5"x11"	6"x9"	7"x8"	8"x7"	9"x6"	10"x5½"	12"x4½"
9"	5"x14½"	6"x11½"	7"x10"	8"x8½"	9"x7½"	10"x7"	12"x6"
10"	5"x18"	6"x14½"	7"x12"	8"x10½"	9"x9½"	10"x8½"	12"x7"
12"	5"x27"	6"x22"	7"x18"	8"x15½"	9"x13½"	10"x12"	12"x10"

## HOW TO CONVERT SQUARE INCHES OF GRAVITY WARM AIR PIPE AND SQUARE FEET OF RADIATION INTO B. T. U. TO DETERMINE SIZE OF AIR CONDITIONER NEEDED

Multiply the square inches of gravity warm air pipe or square feet of radiation by the proper figure given below:

- One Square Inch of Heat Pipe to FIRST Floor=111 B. T. U.
- One Square Inch of Heat Pipe to SECOND Floor=167 B. T. U.
- One Square Foot of Steam Radiation=240 B. T. U.
- One Square Foot of Vapor Radiation=220 B. T. U.
- One Square Foot of Hot Water Radiation=150 B. T. U.



## CONVERSION CHART

This chart is designed to aid dealers who know how to determine gravity warm air, steam, vapor or hot water requirements to select the proper sizes required for pipes, registers and risers for a Sunbeam Air Conditioning installation.

This chart is based upon the register temperature and velocities we use in standard practice.

### HOW TO USE THIS CHART

After computing the requirements for gravity warm air, steam, vapor or hot water, follow down the column under the method you have used for figuring to the square inches of heat pipe or square feet of radiation figured, then across to the headings "Pipe", "Register" and "Riser" under "Air Conditioning". The sizes listed under these headings are the required sizes to use for Air Conditioning.

**EXAMPLE:** Assume that 41 square feet of hot water radiation is required: — Under the heading "Hot Water" you will find 41 and opposite this figure under Air Conditioning you will see that a 6" pipe, 12" x 5" register and 3" x 12" riser is required for Air Conditioning. (For 1st or 2nd Floor).

**EXAMPLE:** Assume 56 square feet of steam radiation is required on second floor: —

For 56 square feet of steam radiation on the second floor you should use one-half of 56 which is 28, and install two registers, because a single riser required, 3" x 20", for 56 feet of steam cannot be accommodated in a standard stud space area of 3½" x 14". Since 28 square feet of radiation does not appear under "Steam" you will have to use the next larger figure given which is 30 square feet. Opposite 30 you will find that a 6" pipe, 14" x 5" register and 3" x 14" riser is required for 30 square feet of steam or two 6" pipes, two 14" x 5" registers and two 3" x 14" risers for 56 square feet of steam on the second floor.

A 3" x 14" riser is not a standard size. (See Note 3 on reverse side). Therefore, if standard commercial sizes are desired you can select the next larger register which will take a standard size fitting and connect to a standard size riser. For example, a 3" x 12" (See Note 2 on reverse side) riser and a 12" x 6" register could be used in place of the 3" x 14" riser and 14" x 5" register. Never go back up the column to a smaller size.

### EQUIVALENT FREE AREA CHART FOR SQUARE DUCTS

The conversion chart is drawn up for round pipe installations. Should you wish to use square (rectangular) ducts you can select the proper size from the Equivalent Free Area Chart.

For example, assume you have an 8" round pipe required. Referring to the Equivalent Free Area Chart opposite 8" you will find that several sizes are listed. You must first decide how deep you wish to make this square duct. We will assume that a duct 6" deep is required. Opposite 8" in the third column you will find 6" x 9". This represents a duct 6" deep and 9" wide, and can be used in place of an 8" round pipe. Should you have wished an 8" depth, then an 8" x 7" duct would be used.

For trunk line design you merely use the combined widths of all ducts to obtain the main duct size. For example, suppose you have a 6", 7" and 8" pipe figured for 3 separate rooms and that you wish to use a trunk line to these rooms. This trunk must be sufficiently deep to accommodate the deepest pipe — 8" — when it branches off the trunk. We will assume that a 9" depth is desired. Opposite 6" you will find 9" x 3½", opposite 7" — 9" x 4½" and opposite 8" — 9" x 6". The widths 3½", 4½" and 6" added together gives 14" or a 9" x 14" main duct for the three pipes figured. You can use this 9" x 14" duct with the three square ducts of the sizes above given, or the round pipes can be attached to the 9" x 14" duct. After each branch is taken off, the main duct size should be reduced.

### BATH ROOMS

Provide for extra heat in all bath rooms by increasing the square inches of warm air pipe or square feet of radiation by 50% before selecting size of Air Conditioning pipe, register and riser.

### RETURN AIR

The return air side of your system should be of equal capacity to the warm air side. You can figure for a return in every room except kitchens and baths, or you can figure on three or four faces at various points of vantage.



# SUNBEAM

## BLOWER CAPACITY TABLE

**CERTIFIED RATINGS**—Air Deliveries, or Capacities, are in accordance with Standard Test Code for Centrifugal and Propeller Fans adopted jointly by the National Association of Fan Manufacturers and the American Society of Heating and Ventilating Engineers.

### No. 1-9 Blower

VOLUME C.F.M.	OUTLET VELOCITY F.P.M.	1/16" S.P.			1/8" S.P.			3/16" S.P.			1/4" S.P.			3/8" S.P.			1/2" S.P.		
		TIP SPEED	RPM	BHP	TIP SPEED	RPM	BHP	TIP SPEED	RPM	BHP	TIP SPEED	RPM	BHP	TIP SPEED	RPM	BHP	TIP SPEED	RPM	BHP
594	800	935	386	.036	1130	467	.052	1290	532	.068	1460	603	.086				2064	853	.22
668	900	1000	413	.048	1187	490	.064	1333	550	.082	1480	611	.100				2083	861	.26
742	1000	1075	444	.060	1243	513	.080	1394	576	.098	1528	631	.118	1790	739	.160	2105	870	.30
816	1100	1142	471	.078	1298	536	.096	1448	598	.118	1579	652	.140	1817	750	.182	2150	888	.32
890	1200	1230	508	.098	1364	564	.112	1512	624	.140	1635	675	.164	1855	766	.20	2197	906	.36
965	1300	1325	547	.124	1437	594	.140	1575	650	.166	1690	699	.196	1908	788	.24	2260	934	.42
1039	1400	1410	583	.150	1508	623	.166	1623	670	.200	1750	723	.22	1960	810	.28	2313	955	.46
1113	1500	1480	611	.178	1580	653	.200	1690	698	.220	1802	744	.26	2022	835	.32	2373	980	.52
1187	1600	1575	650	.220	1648	680	.240	1758	725	.260	1870	772	.30	2077	856	.36			
1261	1700	1644	679	.260	1740	720	.280	1833	757	.300	1930	797	.34	2140	884	.40			
1336	1800	1755	725	.300	1825	754	.320	1893	782	.340	2000	826	.38	2190	905	.44			

### No. 1-12 Blower

1008	800	935	298	.062	1130	360	.088	1290	411	.114	1460	465	.144						
1134	900	1000	318	.08	1187	378	.11	1333	424	.138	1480	471	.17						
1260	1000	1075	342	.104	1243	396	.136	1394	444	.168	1528	486	.20	1790	570	.28			
1386	1100	1142	364	.132	1298	413	.164	1448	460	.20	1579	502	.24	1817	578	.30	2064	658	.40
1512	1200	1230	392	.168	1364	434	.20	1512	481	.24	1635	520	.28	1855	590	.36	2083	663	.44
1638	1300	1325	422	.20	1437	457	.24	1575	501	.28	1690	538	.32	1908	607	.40	2108	670	.50
1764	1400	1410	449	.26	1508	480	.28	1623	517	.32	1750	556	.38	1960	624	.44	2150	683	.56
1890	1500	1430	471	.30	1580	503	.34	1690	538	.38	1802	573	.44	2022	644	.54	2197	699	.62
2016	1600	1575	501	.38	1648	524	.40	1758	559	.44	1870	595	.50	2077	660	.60	2260	720	.70
2142	1700	1644	523	.44	1740	554	.48	1833	583	.52	1930	614	.56	2140	681	.68	2313	736	.78
2268	1800	1800	573	.52	1825	581	.56	1893	602	.60	2000	636	.64	2190	696	.76	2373	755	.88

### No. 1-15 Blower

1744	800	914	232	.081	1117	285	.111	1297	330	.165	1487	379	.21						
1962	900	971	247	.105	1164	297	.143	1330	339	.18	1498	382	.24						
2180	1000	1032	263	.135	1219	310	.18	1375	350	.225	1522	388	.27	1818	463	.39			
2398	1100	1100	280	.165	1271	324	.21	1424	363	.255	1563	398	.315	1832	466	.435	2100	535	.555
2616	1200	1168	298	.225	1328	338	.255	1483	378	.315	1614	411	.36	1860	474	.48	2105	536	.63
2834	1300	1230	314	.27	1389	354	.315	1540	392	.375	1660	423	.42	1898	484	.555	2120	537	.69
3050	1400	1302	332	.33	1445	368	.375	1590	405	.435	1719	437	.495	1942	495	.615	2148	547	.765
3270	1500	1389	354	.405	1518	387	.435	1648	419	.495	1772	451	.57	1983	505	.69	2185	557	.84
3490	1600	1460	372	.48	1580	403	.525	1702	434	.57	1828	465	.645	2033	517	.78	2234	570	.93
3705	1700	1540	392	.57	1643	418	.615	1767	450	.66	1880	479	.735	2100	535	.885	2284	582	1.035
3925	1800	1740	443	.69	1710	435	.72	1825	464	.765	1942	495	.825	2150	547	.99	2328	593	1.14

NOTE No. 1—Using capacities below underscorings results in noise being encountered.

Symbols: S.P.=Static Pressure or Resistance. C.F.M.=Cubic Feet of Air per Minute. F.P.M.=Feet per Minute. RPM=Revolutions per Minute. BHP=Brake Horse Power or size of Blower Motor.

Following is a list of Sunbeam Air Conditioners and the No. of the blower with which each is equipped.

No. 720-R No. M-2 No. 5520	No. 1-9	No. 124 (100,000 to 123,000 Btu) No. 224 (100,000 to 123,000 Btu) No. 424 (100,000 to 123,000 Btu) No. D-2 No. 2280 No. 5220 No. M-3 No. 2480 No. 5620 No. M-4 No. 4020 No. 5522 No. 4420 No. 5524 No. 4820 No. 5527			No. 1-12	No. 434 (187,000 to 285,000 Btu) No. 634 (187,000 to 285,000 Btu) No. D-4 No. 27-S No. 3080			No. 1-18	No. D-5 No. 2-15
		No. 124 (124,000 to 186,000 Btu) No. 224 (124,000 to 186,000 Btu) No. 424 (124,000 to 186,000 Btu) No. D-3 No. M-5 No. 24-S No. 2780				No. 434 (286,000 to 331,000 Btu) No. 634 (286,000 to 331,000 Btu) No. 3480				



# SUNBEAM

## BLOWER CAPACITY TABLE

**CERTIFIED RATINGS**—Air Deliveries, or Capacities, are in accordance with Standard Test Code for Centrifugal and Propeller Fans adopted jointly by the National Association of Fan Manufacturers and the American Society of Heating and Ventilating Engineers.

### No. 1-18 Blower

VOLUME C.F.M.	OUTLET VELOCITY F.P.M.	1/16" S.P.			1/8" S.P.			3/16" S.P.			1/4" S.P.			5/16" S.P.			1/2" S.P.		
		TIP SPEED	RPM	BHP	TIP SPEED	RPM	BHP	TIP SPEED	RPM	BHP	TIP SPEED	RPM	BHP	TIP SPEED	RPM	BHP	TIP SPEED	RPM	BHP
2510	800	884	187	.111	1098	233	.159	1278	271	.225	1465	311	.285				2070	439	.765
2825	900	940	199	.1275	1140	242	.195	1307	277	.255	1470	312	.33				2075	440	.855
3140	1000	999	212	.1875	1188	252	.24	1351	287	.315	1501	319	.375	1792	380	.54	2088	444	.96
3455	1100	1052	223	.24	1232	262	.285	1390	295	.36	1535	326	.435	1804	383	.60	2114	448	1.065
3770	1200	1110	236	.30	1280	272	.345	1442	306	.42	1580	336	.495	1830	388	.675	2150	456	1.17
4080	1300	1178	250	.375	1343	285	.42	1490	316	.495	1630	346	.57	1870	397	.765	2196	465	1.29
4395	1400	1230	261	.45	1400	297	.51	1540	327	.57	1673	355	.66	1905	404	.855	2238	474	1.41
4710	1500	1297	275	.54	1463	310	.615	1593	338	.675	1720	365	.765	1945	413	.96	2280	484	1.56
5025	1600	1363	289	.66	1510	320	.72	1650	350	.78	1768	375	.87	1998	424	1.065			
5340	1700	1400	297	.765	1572	334	.855	1710	363	.915	1812	385	.99	2041	433	1.185			
5650	1800	1481	314	.915	1634	347	.99	1758	373	1.05	1880	399	1.125	2085	443	1.335			

### No. 1-21 Blower

3425	800	884	161	.15	1098	200	.225	1278	232	.30	1465	266	.39				2070	376	1.05
3850	900	940	171	.195	1140	207	.27	1307	238	.36	1470	267	.45				2075	377	1.17
4280	1000	999	181	.255	1188	216	.33	1351	246	.42	1501	273	.51	1792	326	.72	2088	380	1.305
4710	1100	1052	191	.315	1232	224	.39	1390	253	.495	1535	279	.60	1804	328	.81	2114	384	1.44
5135	1200	1110	202	.405	1280	233	.48	1442	262	.57	1580	287	.69	1830	333	.915	2150	391	1.59
5565	1300	1178	214	.51	1343	244	.57	1490	271	.675	1630	296	.78	1870	340	1.035	2196	399	1.755
5990	1400	1230	224	.615	1400	254	.69	1540	280	.78	1673	304	.90	1905	346	1.155	2238	406	1.935
6420	1500	1297	236	.75	1463	266	.825	1593	290	.915	1720	313	1.035	1945	354	1.305	2280	414	2.13
6850	1600	1363	248	.90	1510	274	.975	1650	300	1.065	1768	322	1.185	1998	363	1.455			
7275	1700	1400	254	1.05	1572	286	1.155	1710	311	1.26	1812	330	1.35	2041	371	1.62			
7705	1800	1481	269	1.23	1634	297	1.35	1758	320	1.44	1880	342	1.53	2085	379	1.815			

### No. 2-15 Blower

3488	800	914	232	.165	1117	285	.225	1297	330	.315	1487	379	.42						
3924	900	971	247	.21	1164	297	.285	1330	339	.375	1498	382	.48						
4360	1000	1032	263	.27	1219	310	.36	1375	350	.435	1522	388	.54	1818	463	.80			
4796	1100	1100	280	.345	1271	324	.435	1424	363	.525	1563	398	.63	1832	466	.87	2100	535	1.11
5232	1200	1168	298	.435	1328	338	.525	1483	378	.63	1614	411	.72	1860	474	.96	2105	536	1.26
5668	1300	1230	314	.54	1389	354	.63	1540	392	.735	1660	423	.84	1898	484	1.11	2120	537	1.38
6100	1400	1302	332	.66	1445	368	.735	1590	405	.855	1719	437	.99	1942	495	1.23	2148	547	1.53
6540	1500	1389	354	.81	1518	387	.885	1648	419	.99	1772	451	1.14	1983	505	1.38	2185	557	1.68
6980	1600	1460	372	.96	1580	403	1.05	1702	434	1.155	1828	465	1.29	2033	517	1.56	2234	570	1.86
7410	1700	1540	392	1.14	1643	418	1.23	1767	450	1.335	1880	479	1.37	2100	535	1.77	2284	582	2.07
7850	1800	1740	443	1.38	1710	435	1.44	1825	464	1.53	1942	495	1.65	2150	547	1.98	2328	593	2.28

NOTE No. 1—Using capacities below underscorings results in noise being encountered.

Symbols: S.P.=Static Pressure or Resistance. C.F.M.=Cubic Feet of Air per Minute. F.P.M.=Feet per Minute. RPM=Revolutions per Minute. BHP=Brake Horse Power or size of Blower Motor.

Following is a list of Sunbeam Air Conditioners and the No. of the blower with which each is equipped.

No. 720-R No. M-2 No. 5520	No. 1-9	No. 124 (100,000 to 123,000 Btu) No. 224 (100,000 to 123,000 Btu) No. 424 (100,000 to 123,000 Btu) No. D-2 No. 2280 No. 5220 No. M-3 No. 2480 No. 5620 No. M-4 No. 4020 No. 5522 No. 4420 No. 5524 No. 4820 No. 5527	No. 1-12	No. 434 (187,000 to 285,000 Btu) No. 634 (187,000 to 285,000 Btu) No. D-4 No. 27-S No. 3080	No. 1-18	No. D-5 No. 2-15
	No. 1-15	No. 124 (124,000 to 186,000 Btu) No. 224 (124,000 to 186,000 Btu) No. 424 (124,000 to 186,000 Btu) No. D-3 No. M-5 No. 24-S No. 2780	No. 1-21	No. 434 (286,000 to 331,000 Btu) No. 634 (286,000 to 331,000 Btu) No. 3480	No. 1-21	

**THE FOX FURNACE COMPANY • ELYRIA, OHIO**

A DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION



# SUNBEAM

## WARM-AIR FURNACES



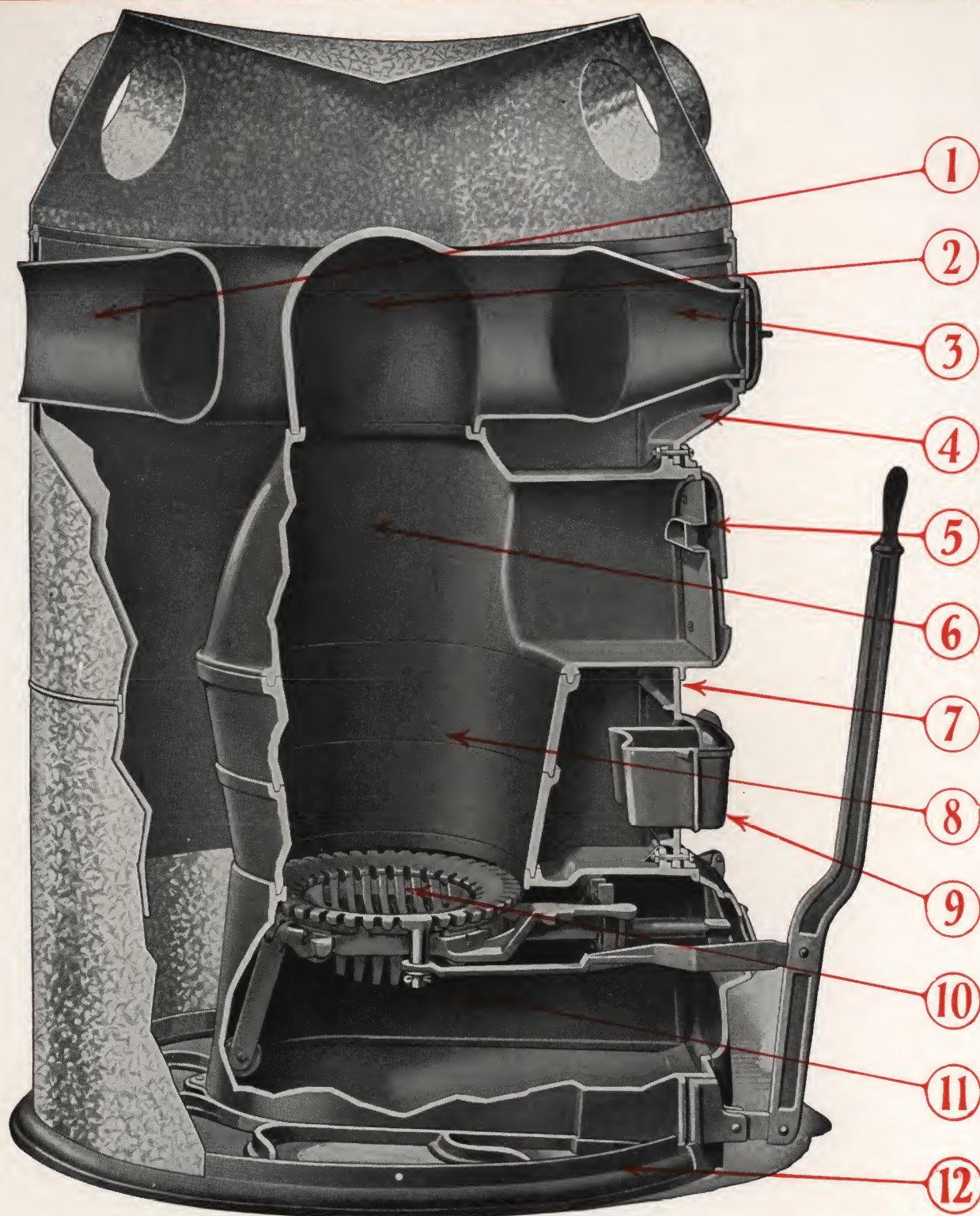
The Sunbeam Cast Furnace — 1000 Series  
—Available in Pipe and Pipeless Types

**THE FOX FURNACE COMPANY • ELYRIA, OHIO**

A DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

MANUFACTURERS OF WARM AIR FURNACES AND AIR CONDITIONING UNITS, OF  
CAST IRON AND STEEL CONSTRUCTION, FOR EVERY KIND OF FUEL—COAL, GAS, OIL





**Construction Superiorities of the 1000 Series Sunbeam Cast Furnace Include:**

1. SMOKE COLLAR—cast with radiator, extends outside of casing. The radiator can be revolved to any position for convenient connection to flue.
2. RADIATOR—cast in one piece. Expert design incorporates oversize capacity for the hot gases; yet gives a maximum of air circulating space.
3. CLEAN-OUT COLLAR—cast with radiator. Cover bolts over large opening effecting gas-tight connection.
4. UPPER FRONT PANEL—slips in place over and around feed section, eliminating possibility of gas leakage from feed section into warm-air chamber.
5. HOT BLAST—admits heated air which is necessary for the complete combustion of gases.
6. COMBUSTION CHAMBER AND FEED SECTION—Opening at top is centered above fire pot. Feed section is short. Feed door and opening are machine-ground.
7. LOWER FRONT PANEL—slips in place over and around ash pit section. It is impossible for dust from ash pit to enter warm-air chamber.
8. TWO-PIECE FIRE POT—made of heavy-weight Sunbeametal, with extra deep cup joints. Two-piece construction assures long life.
9. VAPOR PAN—extra large capacity. Located where it will evaporate necessary moisture.
10. DUPLEX GRATE—has more free area than ordinary grates. Upright shaker revolves outer ring on 4 large wheels. Can never stick. Prevents ash accumulation against fire pot walls. Grate removed by releasing one cotter pin and two bolts.
11. ASH PIT—high and spacious. Full width opening makes removal of ashes easy. Door and door openings are machine-ground.
12. ONE-PIECE BASE—levels quickly, reducing installation time. Ash pit base has deep cupped joint assuring rapid assembly and a leak-proof bottom.



## The Combustion Chamber and Feed Section

The combustion chamber and feed section is of generous proportions and allows plenty of space for the combustion of volatile gases. Large feed door and short feed section make firing easy. Arched sides and top impart greater strength. Top opening with sharp, deep cup joint is centered directly over fire pot.

Feed section extends through front of furnace. Feed door opening and feed door are machine ground to insure air-tight fit. Feed door is mounted directly on feed section.



### Hot Blast

In the Sunbeam Hot Blast, the air admitted from the outside is heated as it passes upward in the feed door. Therefore, only warm air which will aid in combustion, mixes with the volatile gases.



## The Durable Sunbeam Two-Piece Fire Pot

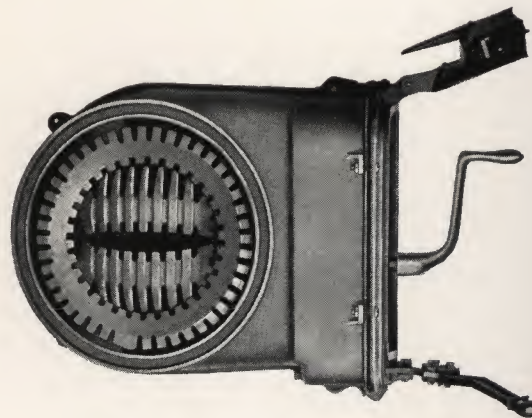
This fire pot is extra heavy and is built with deep, clean-cut cup joints. Smooth design and machine molding result in castings having longer life, greater strength and resistance to the strain of expansion and contraction. Ashes cannot accumulate along the steep walls of this fire pot.

Greater strength is needed, where greater strain is found. Therefore, Sunbeam fire pots are unusually heavy. After years of service, they will be in the same good condition as the balance of the heating plant.

## The Improved Sunbeam Duplex Grate

Illustrated opposite is the Duplex Grate. The slightest pressure on the shaking handle unfailingly revolves the outer ring and speedily removes all ashes. The ring operates smoothly on the four wheels which support it. Sufficient clearance between grate and ash pit top has been provided to eliminate the possibility of ashes interfering with motion of grate.

Notice how the outer ring is beveled towards the center of grate. Because of this construction the clinkers move into the "basket" when grate is shaken. One turn of the "basket" and they are dumped into ash pit without disturbing fire.



*View of grate with "basket" dumped  
for removal of clinkers*



## The Slip-On Lower Front Panel

As shown in the accompanying illustration, the ash pit extends through the front of furnace.

The lower front panel quickly slips into place above and around the ash pit and is held rigidly and tightly in the back by a shoulder cast on the ash pit and by finishing strips on the front. Dust and dirt positively cannot enter the warm-air chamber.

In addition to keeping dust out of the warm-air chamber, this construction saves time on the job and reduces installation costs.

*There are no vertical joints within the air chamber of the cast iron, Sunbeam Warm-Air Furnaces.*



## The Roomy, Air-Tight Ash Pit



Notice the spacious, high ash pit, wide opening with full size door. Leak-proof connection is assured by deep cup joint and by bolting ash pit to base. Ash pit door is mounted directly on ash pit.

The door opening is machine ground with door and base. An air-tight union results.

When the door is closed, there are no cracks, openings or uneven spaces through which unwanted draft can be admitted to the fire. Draft door and seat on ash pit door are machine ground.

To some, machine grinding may seem to be an expensive operation which can be dispensed with; but nothing, however minor, that will improve the performance of Sunbeam Furnaces has been overlooked or omitted.

## The Rigid One-Piece Base

The superiority of the new Sunbeam Furnace starts with the heavy, strong one-piece base which saves installation time and costs and assures the furnace of a firm level setting. Sunbeam base has the following features:

1. Deep, wide cup joint in which ash pit fits.
2. Three places where ash pit is bolted securely to base. A leak-proof union is the result.
3. Front of base is machine ground. When attached to ash pit, it is always in perfect alignment with the top and sides of ash pit door opening. Door always closes air tight, giving absolute control of fire.
4. High flange which saves time when fitting casing.



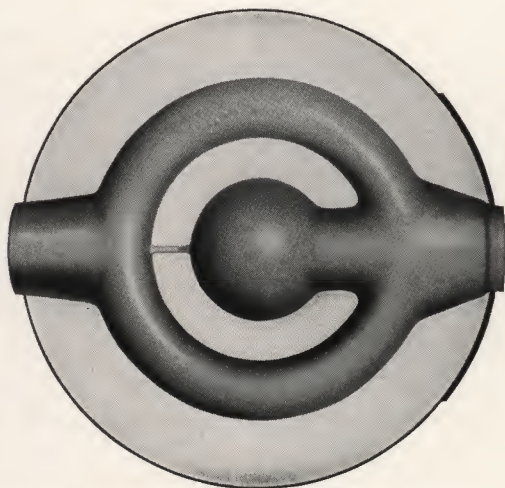


## The Heating Unit

From its one-piece base to its one-piece radiator, the heavy, ideally proportioned Sunbeam Heating Unit has every improvement that you can expect to find. Heating parts are durable and heavy. All joints are deeply cupped and join snugly. The heating parts are centered, making it possible to move the radiator to any position without using extension collars and without affecting the perfect balance of the heating plant. All openings in the heating unit are on the outside of the front and the casings.

In this furnace, Sunbeam designers have incorporated ample heating surface, have maintained the correct ratio between grate area and heating surface and have provided plenty of free air circulating space.

Ease and speed of assembly is one feature of the furnace that will appeal to heating contractors—and reduces installation costs.



*View of top of radiator. Notice how smoke collar and cleanout openings are outside of the furnace casing and front.*

## The Slip-On Upper Front Panel

Notice how the feed section extends through the front of the furnace. There is no joint inside of the warm-air chamber through which gas or dust can escape. The upper front panel quickly slips into position above and around the feed section. It is held in place firmly and tightly in the back by a shoulder cast on the feed section, and in the front, by finishing strips which are bolted into place.

*There are no vertical joints within the air chamber of the cast iron, Sunbeam Warm-Air Furnaces.*



## One-Piece Radiator

No gas or smoke from the oversize Sunbeam radiator can possibly enter the warm-air chamber. The Radiator, Cleanout and Smoke Collar are cast in one piece. As you can readily see from the illustration at the left the smoke outlet and cleanout opening extend outside of the casing and the front of the furnace.

The high, wide radiator opening is centered directly above fire pot and combustion chamber. It aids in the combustion of the fuel. The radiator can be revolved to any position for a most convenient connection with the flue.

Both the cleanout opening and the cleanout cover are machine-ground. No dust, soot or smoke can possibly escape from the air-tight connection which results. And yet, cover can be easily removed for cleaning of radiator.





## The Sunbeam Pipeless Furnace

### 1000 Series

The famous cast iron Sunbeam Heating Plant is now available as a Pipeless Furnace. The same care and attention that was devoted to the design of the heating parts as shown in the preceding pages, has been accorded to the Air Circulating compartments—both return air and warm air—and the construction of casings. Insufficient space in the return air compartment, or the penetration of heat from the warm air section will so retard air circulation in a pipeless furnace that it cannot deliver its rated capacity. This cannot occur in the Sunbeam. The return air compartment is much larger than on ordinary heating plants. The inner casing, which separates return air and warm air compartments, is effectively insulated with a lining of corrugated bright tin, backed up by a layer of asbestos paper.

To further assure unrestricted air circulation and the delivery of full heating capacity, fabricated steel registers with more than 80% free air space are standard equipment on Sunbeam Pipeless Furnaces. These registers have almost twice as much free area as one of cast iron construction.



## SUNBEAM CAST IRON PIPE FURNACES

Furnace Number	Grate Area in Square Feet	Heating Surface in Square Inches	Ratings in Sq. In.	B. T. U. Capacity per Hour at Register	Inside Diameter of Fire Pot	Diameter of Smoke Collar	Approx. Distance from Floor to Center of Smoke Outlet	Req. Cellar Height to Bottom of Joist	Size of the Feed Door	Size of the Ash Pit Door	Height of Ash Pit	Diameter of Casing	Height of Casings and Pitch Hood	Height of Lower Section of Casing	Height of Upper Section of Casing	Circumference of Top Casing Ring	Over-all Length of Casing Sheets	Approx. Shipping Weight, Less Casings, in Pounds	Approx. Shipping Weight Complete in Pounds
*1018CD	1.22	4274	336	46400	18"	8"	40½"	6'	9"x11½"	16"x12½"	13"	36"	59½"	20"	24"	113½"	88"	710	770
1040CDA	1.49	5126	405	55900	20"	8"	46⅞"	6'	10½"x13½"	17"x12"	12"	40"	65½"	22"	28"	125½"	103⅝"	882	954
1044CDA	1.90	5874	492	67900	22"	9"	45¾"	6'	10½"x13½"	19¾"x12"	12"	44"	65½"	22"	28"	138¾"	114¼"	1008	1087
1048CDA	2.29	6598	578	79800	24"	9"	45¾"	6'	10½"x13½"	19¾"x12"	12"	47"	65½"	22"	28"	147¼"	123¼"	1149	1233
1052CDA	2.82	7494	689	95100	26"	10"	49¼"	6½'	10½"x13½"	21¾"x13½"	13½"	52"	69½"	24"	30"	162½"	136¼"	1440	1539
1056CDA	3.34	8256	794	109600	28"	10"	49¼"	7'	10½"x13½"	21¾"x13½"	13½"	56"	69½"	24"	30"	175¾"	149½"	1568	1686
‡30C	3.69	9986	907	125200	30"	9"	56"	8'	13"x13¼"	10½"x21½"	14"	60"	76¼"	20" Middle	20"	188¼"	156⅝"	1964	2118

\*The 1018CD is furnished with Duplex grates only.

‡The 30C furnace has two piece radiator and is equipped with triangular grate bars only.

STANDARD EQUIPMENT—Check draft, finishing collars, poker, draft regulator, chain and pulleys, asbestos cement, nuts and bolts. ALL RATINGS CERTIFIED TO BY THE NATIONAL WARM-AIR HEATING AND AIR CONDITIONING ASSOCIATION.

## SUNBEAM CAST IRON PIPELESS FURNACES

Furnace Number	Grate Area in Square Feet	Heating Surface in Square Inches	Number of Rooms to be Heated	Capacity in Cubic Feet	Inside Diameter of Fire Pot	Size of Register	Diameter of Smoke Collar	Approx. Distance from Floor to Center of Smoke Outlet	Minimum Cellar Height Required to Bottom of Joist	Size of the Feed Door	Size of the Ash Pit Door	Height of the Ash Pit	Diam. of Inner Casing	Diam. of Outer Casing	Diameter of Warm-Air Outlet	Approx. Shipping Weight Complete in Pounds
*1018BD	1.22	4274	3 to 5	8000 to 12000	18"	28"x28"	8"	40½"	6'	9"x11¼"	16"x12½"	13"	33¼"	41⅝"	19½"	910
1040BD	1.49	5126	5 to 7	12000 to 16000	20"	32"x32"	8"	46⅞"	6'	10½"x13½"	17"x12"	12"	40"	52"	24"	1156
1044BD	1.90	5874	7 to 10	16000 to 20000	22"	32"x32"	9"	45¾"	6'	10½"x13½"	19¾"x12"	12"	44"	56"	24"	1290
1048BD	2.29	6598	10 to 12	20000 to 24000	24"	35"x35"	9"	45¾"	6'	10½"x13½"	19¾"x12"	12"	47"	60"	26"	1462
1052BD	2.82	7494	12 to 14	24000 to 28000	26"	38"x38"	10"	49¼"	6'	10½"x13½"	21¾"x13½"	13½"	52"	64"	28"	1776

\*The 1018BD is furnished with Duplex grates only.

STANDARD EQUIPMENT—Register, check draft, poker, draft regulator, chain and pulleys, asbestos cement, nuts and bolts. Warm-air and return-air extension sufficient for 8' cellar height, is shipped with each pipeless furnace.

NOTE: Duplex Grates are standard equipment and will be provided unless otherwise specified. If triangular grate bars (without upright shaking handle) are wanted, indicate by adding the letters CT or BT to Serial Number; for example, 1040 CT (pipe) or 1040BT (pipeless).



# SUNBEAM

## WARM-AIR FURNACES



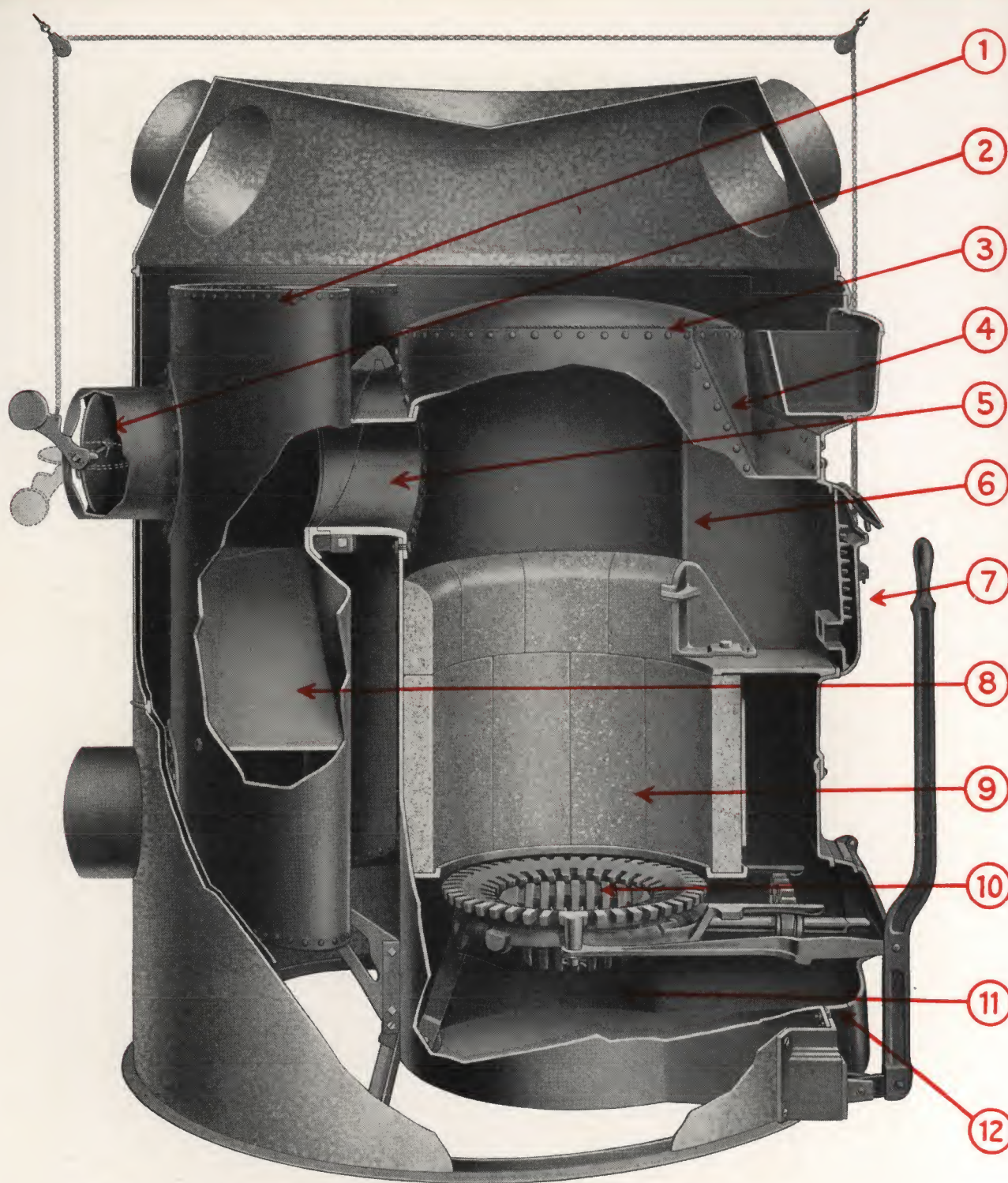
The Sunbeam Series No. 8000 Steel Pipe Furnace — Better for Burning Oil — Better for Burning Coal. The Coal Burning Model is shown above.

## THE FOX FURNACE COMPANY • ELYRIA, OHIO

A DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

MANUFACTURERS OF WARM AIR FURNACES AND AIR CONDITIONING UNITS, OF  
CAST IRON AND STEEL CONSTRUCTION, FOR EVERY KIND OF FUEL—COAL, GAS, OIL





A VIEW OF THE INTERIOR OF THE SUNBEAM STEEL FURNACE, COAL BURNING MODEL

- 1 LARGE RADIATOR WELDED AND RIVETED. The radiator is welded and riveted to make it a seamless, leak-proof unit. Smoke collars are of cast iron and are securely and tightly bolted to radiator. Radiator is cleaned through lower smoke outlet.
- 2 DIRECT DRAFT DAMPER. Direct draft damper is located in upper smoke collar, outside of casing where it will not warp, bind, or burn out.
- 3 WELDED AND RIVETED HEAD. Long life and leak-proof construction is obtained by welding and riveting the head to top of drum.
- 4 NO JOINT AT TOP OF POUCH. The top of the pouch is riveted and welded to eliminate any joints.
- 5 CAST IRON SMOKE COLLAR CONNECTION. Resistance to the destructive action of the hot flames is obtained by using cast iron smoke collars to join radiator and drum.

- 6 ONE-PIECE DRUM. The one-piece construction of the Sunbeam steel drum eliminates two vertical joints within warm-air chamber.
- 7 LARGE FEED DOOR. Feed door opening is 12½ inches high by 15¼ inches wide at bottom. When door is opened it automatically opens direct draft damper. Smoke will not escape into basement when coal is added.
- 8 "V" TYPE BAFFLE. This baffle causes the hot gases to heat the entire radiator uniformly before passing into the flue. Has no moving parts; nothing to get out of order.
- 9 FULL HEIGHT FIRE POT. Extra deep fire pot 14½ inches high, holds twice as much fuel as ordinary steel furnaces. A much longer firing period is one of the innovations in this modern type of heating plant.
- 10 DUPLEX GRATE. In this advanced type of furnace, you find an advanced type of grate

—the duplex grate. Outer ring is revolved by upright shaking lever, shaking ashes at edge of fire into ash pit. Clinkers move into center or "basket" of grate, where one turn of dumping handle quickly removes them.

- 11 JOINTLESS ASH PIT. Completely welding ash pit bottom to the drum eliminates all possibility of leakage at this connection and makes it impossible for dust, fumes or moisture to escape into warm-air chamber. The ash pit bottom is dished below ash pit door, forming a well for possible oil leakage, preventing oil accumulations from flowing onto basement floor.
- 12 NO DIRECT CONNECTION BETWEEN CASING AND HEATING UNIT. The ingenious, patented design of this furnace, eliminates the possibility of gases or fumes entering the warm-air chamber, as the drum is not connected with the casing. The drum is joined with the front of furnace. The casing is connected separately with the corner column.



## The Steel Furnace Heating Element Series 8000

In the steel heating element of the Series No. 8000 are incorporated all of the modern features that the science of heating has proven desirable. The heavy, rugged metal has the two desirable qualities of durability and rapid transmission of heat. In every respect this heating plant is designed and built to assure fuel economy, clean heating and many years of trouble-free service.

There are no joints in this advanced heating plant through which dirt, soot or fumes can escape from the combustion chamber into the air circulating compartment. Seams are both riveted and welded to provide strength necessary to withstand the forces of expansion and contraction.

The cast iron collars, which connect the radiator to the drum, join with a leak-proof tongue and groove joint and are firmly locked in position and sealed. Cast iron flanges are securely bolted to the drum and radiator at close intervals. Thick asbestos gaskets are inserted to assure gas tight connections where the collars are joined to drum and radiator.

The finest of materials, excellence of design and over fifty years of experience in the manufacture of heating equipment, make the Series No. 8000 the outstanding steel furnace.

### STOKER FIRED MODEL

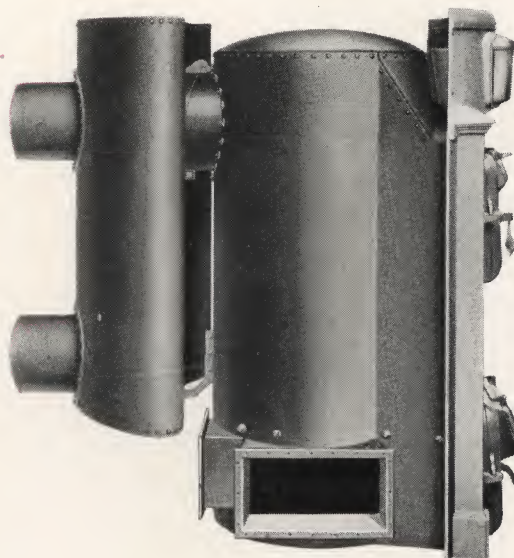
When a stoker is to be connected to the Sunbeam Series No. 8000, the Stoker Fired Model can be furnished. The stoker can be installed in this model from front, rear or either side without any cutting by the installer. Chutes are provided at both sides and at the rear of the heating element. The stoker screw tube can enter the heating element through any one of these chutes or through ash pit door opening. Metal covers and gaskets are provided to seal the chutes not used.

Hopper feed or bin feed (with the screw tube *above* base of furnace) stokers of any standard make can be accommodated. Bin feed stoker with the screw tube *below* base of furnace must be installed in the coal, hand fired, model.

The Stoker Fired Model, like all coal burning models, is equipped with a fire brick lining around the fire box section. Grate assembly is omitted. The standard type of coal burning doors are furnished.



*Coal burning model Series 8000*



*Stoker fired model Series 8000*

*Chute openings are 17" wide by 8½" high.  
Bottom of opening is 4¼" above floor level.*

### Top of Drum and Pouch Made Leak-Proof by Riveting and Welding

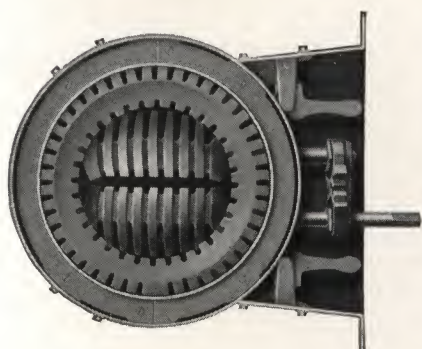
The illustration at the left shows how the head of the steel furnace becomes an integral part of the one-piece drum — gas-tight and leak-proof — because they are joined by welding and riveting, both. The top of the pouch is riveted and welded in place so that there will be no seams or openings however small, through which gas and smoke, soot and dirt can escape into the circulating air stream. The drum is constructed of No. 7 gauge boiler plate.





## Oversize Radiator, Riveted and Welded

This larger radiator increases the heating capacity of this advanced steel furnace. The body of the radiator is formed from a single piece of No. 12 gauge steel plate which is securely riveted and welded. The top and bottom plates are riveted and welded to the sides of radiator. The illustration opposite shows the V type baffle which is bolted permanently into place in each radiator.



## Duplex Grates

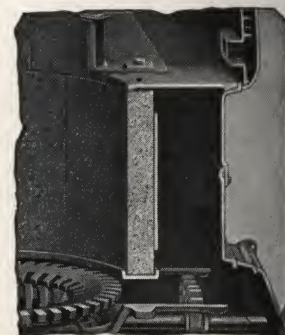
Illustrated opposite is the improved Sunbeam Duplex Grate. Plenty of free air space assures both long life and the efficient combustion of fuel. The outer ring, operated by the upright shaking handle, revolves on four wheel bearings and can never stick. Clinkers are moved into the grate "basket" where they are dumped without loss of live coals.

The ease and speed with which the grate can be installed and removed will appeal to dealers. Open the ash pit door, release two convenient bolts and one pin. Grasp the handles and wheel it in or out like a wheel barrow.

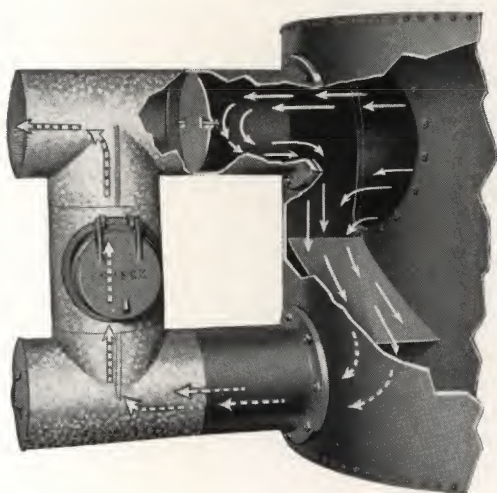
## Full Height Fire Pot

Compare the height of the Sunbeam fire pot with that of an ordinary steel furnace. You will find that it is higher . . . much higher, being  $14\frac{1}{2}$  inches from grate to feed door. A fire pot that holds virtually twice as much fuel assures a longer firing period, more even combustion and more economical consumption of fuel.

By this construction, the Sunbeam organization has overcome one of the greatest steel furnace shortcomings, without reducing the size of the feed door or ash pit. Spacious ash pit door, on smaller sizes measures  $19\frac{5}{8}$ " x 12"; on larger sizes,  $21\frac{5}{8}$ " x  $13\frac{3}{8}$ ".



## Direct Draft Damper and Special Smoke Pipe Connection



The direct draft damper is located in the upper smoke outlet as shown at the left. In this location it gives the advantages of direct and indirect draft and in addition, successfully resists the destructive action of the flames and will not warp, bind or burn out.

The direct draft damper, in coal burning models, is operated by a chain located at the front of furnace. It opens automatically whenever the feed door is opened.

In the oil burning models, this damper can be set manually at any of 4 adjustments by the Damper Adjustor located on the outside of the smoke collar.

The Special Smoke Pipe Connection is shown in position attached to the upper and lower radiator collars. It is equipped with check damper and has a cleanout cap at bottom as illustrated. Arrows indicate smoke travel when Direct Draft Damper is in normal closed position.



## Rotary and Gun Type Oil Burning Models

The Sunbeam Series No. 8000 Steel Furnace is made in two oil burning models; one designed specially for the installation of rotary type oil burners, one for gun type burners. Any standard make of burner can be accommodated.

Numerous installations as well as extensive laboratory tests have proven the remarkably high efficiency of these models. The generous area of heating surface incorporated in these heating plants, and the long fire travel from burner to flue outlet, insure that the products of combustion are thoroughly utilized before they pass into the chimney.

All joints are riveted and welded to successfully resist the constant expansion and contraction that is encountered with the intermittent firing of the oil burner. Gas-tight and fume-tight construction is another advantage which results from riveted and welded seams.

### ROTARY TYPE MODEL

As is illustrated below, this model is provided with an air-tight foundation for the hearth. The hearth plate rests on a cast ring which is set into brackets bolted to the heating element. The space between the steel shell and the ring is packed with asbestos rope to form an air-tight seal and prevent unwanted air from interfering with proper combustion of the burner.

An inner lining of special heat resisting steel protects the heating element from impingement of flame. For insulating the space between the inner lining and the front casting, mineral wool is furnished as illustrated.

### GUN TYPE MODEL

Like the Rotary type model, the Sunbeam Series 8000 Gun type burner model is equipped with an insulated fire door provided with a glass covered observation opening, so that combustion can be observed with the door closed. The lower door has a circular opening through which the blast tube of the burner is inserted.

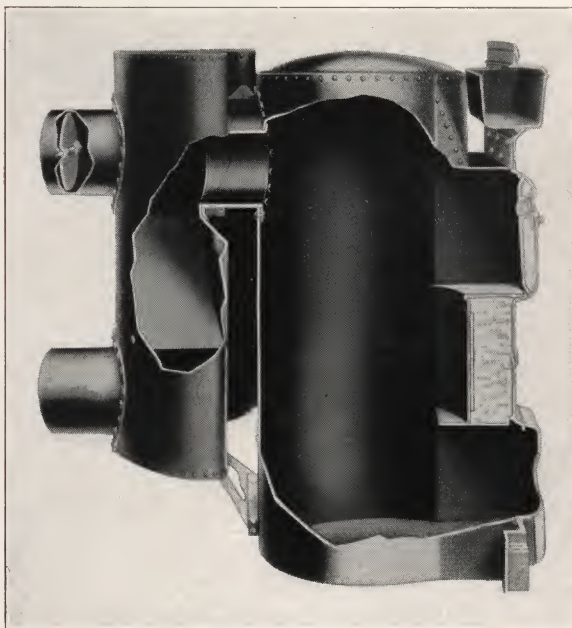
The space between the front casting and the shell is insulated with mineral wool to reduce radiant heat loss through the front of the furnace. The insulation is supported and kept in position by a horizontal plate and a liner of heat-resisting steel which are furnished with all gun type furnace models.



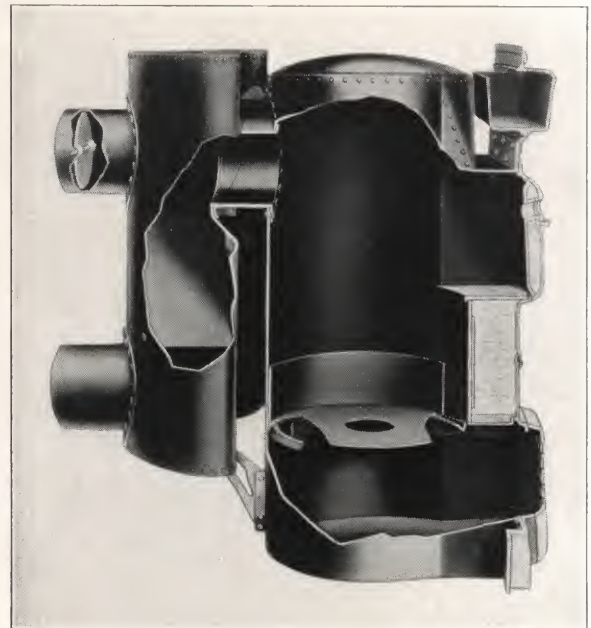
*Sunbeam Oil Burning Furnace designed for Rotary Type Burner*



*Sunbeam Oil Burning Furnace designed for Gun Type Burner*



*Heating element of Gun Type Burner Model of the Series 8000 showing the mineral wool insulation between the inner lining and the front casting, and also the insulation in the fire door. This illustration shows the long fire travel in Series No. 8000 furnace*



*Rotary burner heating element showing cast iron hearth ring set on brackets and sealed with asbestos rope; the hearth plate; hearth plate extension, inner lining of heat-resisting steel, and mineral wool insulation*



## No Direct Connection Between Casing and Drum



Because of its ingenious design, there is no joint in the warm air chamber between the casing and the heating unit of the New Sunbeam Steel Furnace, as you can see from the accompanying illustration. Notice how the heating unit is connected to the front of the furnace. Then notice that the casing is bolted to the corner column, making a separate connection. Gases and fumes cannot escape through this connection into the air chamber. The interlocking joint between heating unit and front of furnace is made air-tight with asbestos rope packing.

### Special Oversize Radiator (Used Only in Furnace No. 8034-J)



Opposite is shown the special oversize radiator. It is constructed of No. 12 gauge steel and is riveted and welded. Connecting collars are of cast iron construction. The connection between collars and drum and radiator is made gas tight through the use of flange collars bolted securely at close intervals. Thick asbestos gaskets between flange and drum and between flange and radiator are an additional seal against gas leakage. A vertical baffle at each side of the radiator directs the passage of hot gases to the base of the radiator, utilizing these gases completely — and heating all parts of the radiator — before the gases rise again and pass out through the smoke collar. Radiator is cleaned through the cleanout opening at bottom. No smoke tee is used.

## Capacities and Dimensions

Furnace Number	† 8022	8024	8027	8030	8034	† 8034J
*Inside Diameter of Drum	22"	24"	27"	30"	34"	34"
Grate Area in Sq. Ft.	1.82	2.24	2.92	3.76	4.96	4.96
Heating Surface in Sq. In.	7475	7821	10362	10820	11462	13662
*Rating in Square Inches (Soft Coal)	537	612	804	947	1151	1229
Rating in Square Inches (Hard Coal)	456	520	683	805	978	1045
Btu Cap. per Hr. at Reg. (Soft Coal)	73032	83232	109344	128792	156536	167144
Btu Cap. per Hr. at Reg. (Hard Coal)	62016	70712	92888	109480	133008	142120
Btu Cap. per Hr. at Reg. (Stoker Fired)	†80000	92000	121000	142000	173000	184000
Btu Cap. per Hr. at Reg. (Oil-Gun Type Burner)	84000	96000	126000	148000	180000	**
Btu Cap. per Hr. at Reg. (Oil-Rotary Type Burner)	98000	112000	147000	173000	210000	**
Overall Height of Heating Unit	54¾"	55"	57 ⅞"	58¾"	61¼"	61¼"
Height of Radiator	38¼"	38¼"	39 ⅝"	39 ⅝"	41"	42"
Width of Radiator on Arc	38"	38"	42"	42"	50"	35 ⅝"
Depth of Radiator	7"	7"	7¾"	7¾"	9"	20¼"
Height of Fire Pot	14½"	14½"	14½"	14½"	14½"	14½"
Size of Feed Door Opening	15 ⅝" x 12 ⅞"	15 ⅝" x 12 ⅞"	15 ⅝" x 12 ⅞"	15 ⅝" x 12 ⅞"	15 ⅝" x 12 ⅞"	15 ⅝" x 12 ⅞"
Size of Ash Pit Door Opening	19 ⅝" x 12"	19 ⅝" x 12"	21 ⅝" x 13 ⅝"	21 ⅝" x 13 ⅝"	21 ⅝" x 13 ⅝"	21 ⅝" x 13 ⅝"
Diameter of Smoke Outlet	9"	9"	10"	10"	10"	10"
Approximate Distance from Floor to Center of Smoke Outlet	41¾"	41¾"	43 ⅝"	44¼"	45¼"	47 ⅞"
Diameter of Casing	46"	48"	53"	56"	61"	†
Height of Casings and Hood	68¼"	68¼"	70¼"	70¼"	70¼"	70¼"
Height of Lower Section of Casing	28"	28"	30"	30"	30"	30"
Height of Upper Section of Casing	26"	26"	26"	26"	26"	26"
Circumference of Top Casing Ring	144½"	150¼"	166½"	175 ⅞"	191 ⅝"	206"
Door Opening Required to Admit Drum (Stoker Model)	†	28¾"	31"	33"	37"	37"
Distance from center of Drum to side of Casing (Stoker Model)	†	24"	26½"	28"	30½"	28"
Distance from center of Drum to rear of Casing (Stoker Model)	†	28¾"	31¾"	34¼"	37 ⅞"	46 ⅞"
Distance from center of Drum to front of Furnace (Stoker Model)	†	18"	20"	21½"	23½"	23½"
Approx. Ship. Weight less Casing, Lbs.	1045	1099	1265	1395	1526	1650
Approx. Ship. Weight Complete, Lbs.	1133	1195	1370	1518	1656	1787

STANDARD EQUIPMENT—Check Draft, Finishing collars, poker, draft regulator, chain and pulleys, nuts and bolts.

\*If stoker is to be used, determine clearance for stoker retort by deducting 3½" (required for fire brick) from inside drum diameter.

†This size is not available in the special stoker fired model.

†This furnace is equipped with special over-size radiator and has an oval shaped casing 71" at its greatest length and 56" at its greatest width. No smoke tee is used with this furnace.

\*These furnaces are rated in accordance with the Standard Code Rating Formula of National Warm Air Heating and Air Conditioning Association.

\*\*The No. 8034J is not recommended for oil burning.



# THE NEW 500 SERIES **SUNBEAM** STEEL FURNACE



*T*HIS FURNACE has been designed to supply the demand for a steel furnace in the lower cost brackets. Expert engineers have drawn on their experience and ingenuity to produce a heating plant that is inexpensive, and yet contains many superiorities that ordinarily are not found in a furnace with price appeal. . . The new No. 500 Series Sunbeam Steel Furnace offers that rare combination of high quality and low price. It enables heating contractors who are matching prices with competitors, to offer a surplus of value that will produce sales.

**THE FOX FURNACE COMPANY, ELYRIA, OHIO**

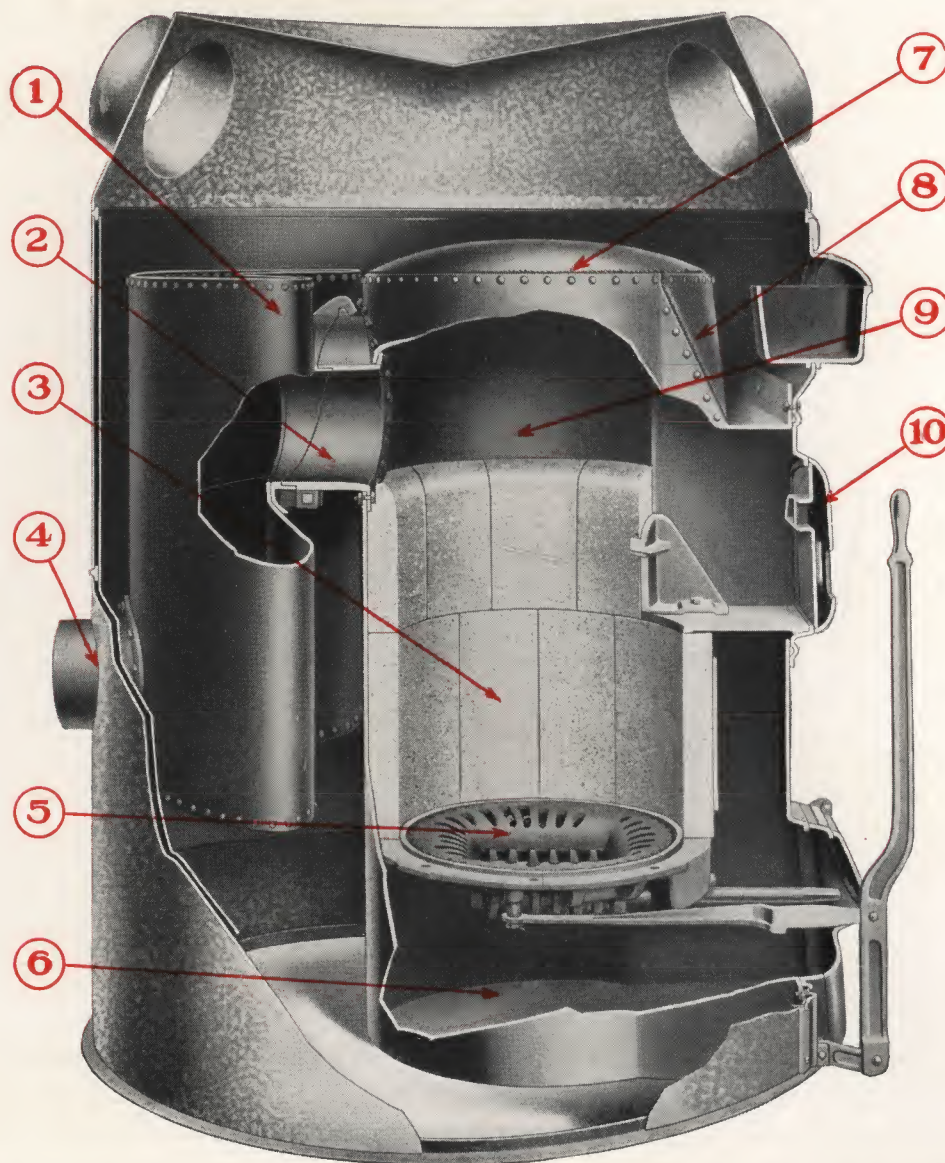
*A Division of* **AMERICAN RADIATOR & STANDARD SANITARY CORPORATION**

MANUFACTURERS OF WARM AIR FURNACES AND AIR CONDITIONING UNITS, OF  
CAST IRON AND STEEL CONSTRUCTION, FOR EVERY KIND OF FUEL—COAL, GAS, OIL

**SUNBEAM**  
WARM-AIR FURNACES



# Interior Construction of No. 500 Series Steel Furnace



**1 RADIATOR** is constructed of No. 12 gauge boiler plate, riveted and welded.

**2 SMOKE COLLARS** are of cast iron construction and are securely bolted at close intervals to form leak-proof joints. Collars join with a tight tongue and groove joint. Asbestos gaskets are inserted where collars connect to drum and radiator.

**3 FULL HEIGHT FIRE POT** is  $13\frac{1}{2}$ " high. Holds a deep bed of fuel. Permits long firing period.

**4 RADIATOR SMOKE COLLAR** is of cast iron construction. It is connected to the radiator gas tight by the insertion of an asbestos gasket and by bolts spaced at close intervals. Notice that collar is located at the base of radiator so that the gases pass through the entire radiator before passing into the flue.

**5 BASKET GRATE** — Excellent combustion and easy removal of ashes and clinkers is assured by this type of grate.

**6 JOINTLESS ASH PIT** — No gas or dust leakage can occur in ash pit, as the base is welded to the drum.

**7 RIVETED AND WELDED HEAD** — Long life and leak-proof construction is obtained by riveting and welding the head to the top of drum.

**8 TOP OF POUCH** — The top of the pouch is riveted and welded.

**9 DRUM** is constructed of No. 8 gauge boiler plate, riveted and welded. Construction of drum eliminates two vertical joints within warm-air chamber.

**10 LARGE FEED DOOR OPENING** is approximately  $13\frac{1}{2}$ " wide by  $10\frac{1}{2}$ " high.



# The No. 500 Series Steel Heating Element

Among the outstanding features of this Sunbeam Furnace, are the materials and methods used in the construction of the heating element. Durable No. 8 gauge boiler plate steel is used in the drum; No. 12 gauge in the radiator. All seams are both riveted and welded to doubly safeguard against gas leakage. Advanced equipment and manufacturing methods, the finest of materials, and over fifty years of experience in the manufacture of residential heating and air handling equipment, make this furnace an unusual value.

## STOKER FIRED MODEL

The Series No. 500—Nos. 524 and 527 sizes—is built in a special Stoker Fired Model which will accommodate bin feed or hopper feed stokers of any standard make.

The stoker can be installed in this model from front, rear or either side without any cutting by the installer. Chutes are provided at both sides and at the rear of the heating element. The stoker screw tube can enter the heating element through any of these chutes or through ash pit door opening. Metal covers and gaskets are provided to seal the chutes which are not used.

Where a bin feed stoker is to be installed with the screw tube below base of furnace, the coal, hand fired model must be used.

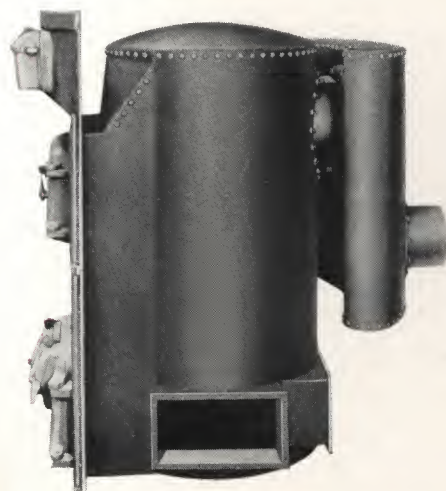
The Stoker Fired Model, like all coal burning models, is equipped with a fire brick lining around the fire box section. Grate assembly is omitted. The standard type of Sunbeam coal burning doors are furnished.

## OIL BURNING MODELS

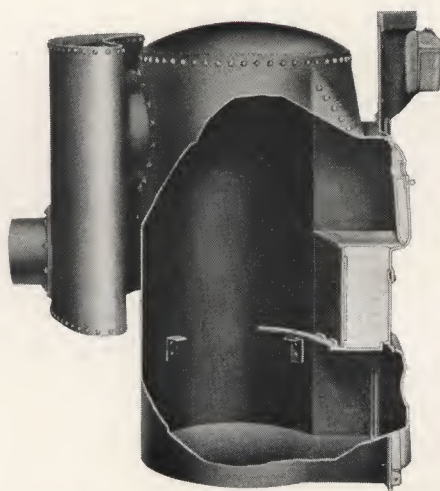
The special design and leak-proof construction of the rotary and gun type oil burning models assure efficient, gas-tight operation. Any standard make of oil burner can be accommodated. Insulated fire doors, with glass covered observation ports, are standard equipment.

### GUN TYPE OIL BURNER MODEL

With this model is supplied mineral wool for insulating the space between the front casting and the shell. The insulation is supported and kept in place by a horizontal plate and a liner of heat resisting steel. The lower door has an opening through which the blast tube is inserted.



STOKER FIRED model of the Series No. 500. Illustration shows chutes, welded to drum, through which the screw tube is inserted. The size of the chutes is 17" wide by 8½" high. Bottom of opening is 4¼" above floor level.



Heating element of GUN TYPE BURNER Model of the Series 500 showing the mineral wool insulation between the inner lining and the front casting, and also the insulated fire door with glass covered observation opening.

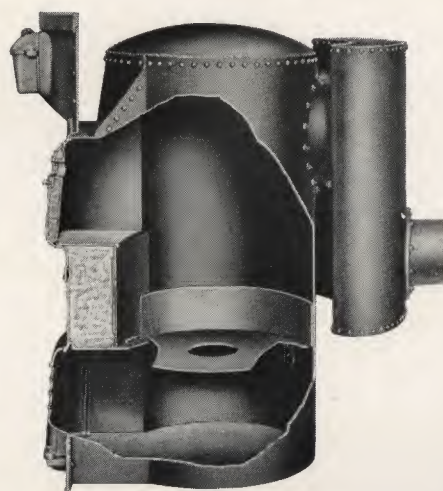


The Sunbeam Series 500 heating element, coal, hand-fired model

### ROTARY OIL BURNER MODEL

With the rotary oil burner model is furnished all the equipment required for an air-tight hearth foundation. As illustrated below, this equipment includes a hearth plate which rests on a cast iron ring held in position by brackets and sealed with asbestos rope. Unwanted secondary air, which would prevent proper combustion of the oil, is excluded from the combustion chamber.

The sides of the heating element are protected from flame impingement by an inner lining of special heat-resisting steel. Mineral wool, for insulating the space between the front casting and the inner lining, is furnished.



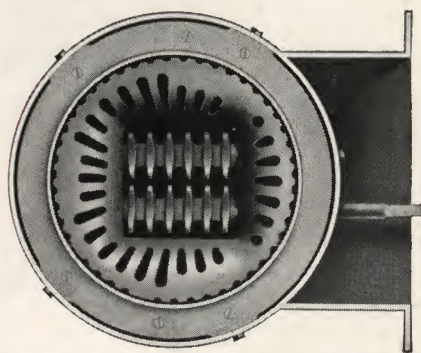
ROTARY BURNER heating element showing cast iron hearth ring set on brackets and sealed with asbestos rope; the hearth plate; hearth plate extension, inner lining of heat resisting steel, and mineral wool insulation.



# Desirable Features of No. 500 Series Steel Furnace

## TOP OF DRUM AND POUCH MADE LEAK-PROOF BY RIVETING AND WELDING

The illustration at the right shows how the head of the steel furnace becomes an integral part of the one-piece drum — gas-tight and leak-proof — because they are joined by riveting and welding, both. The top of the pouch is riveted and welded in place so that there will be no seams or openings however small, through which gas and smoke, soot and dirt can escape into the circulating air.



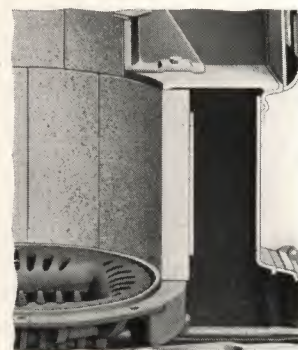
## BASKET GRATE

This type of grate keeps the fire hottest, where you want it, against the walls of the fire pot. The upright shaker handle revolves outer section of grate, smoothly and easily on 3 rollers, shaking down ashes along the edge of grate. Clinkers settle into the center or "basket" section of the grate, where they are broken and removed, without disturbing the fire, by the action of two triangular grate bars, which are located at the bottom of the "basket" section. The large amount of free area in this grate assures plenty of air for combustion of the fuel.

Restricted openings prevent live coals from dropping into ash pit.

## FULL HEIGHT FIRE POT

Economy of fuel consumption, infrequent firing, and slow, complete combustion are three desirable results of a full size fire pot. To provide these advantages the No. 500 Series Sunbeam fire pot is 13½ inches high. The feed doors and ash pit doors are large and roomy, furnishing free and easy access to the interior of furnace.



## CAPACITIES AND DIMENSIONS

FURNACE NUMBER	520	522	524	527
†Inside Diameter of Drum	20"	22"	24"	27"
Grate Area in Square Feet	1.44	1.82	2.24	2.92
Heating Surface in Square Inches	5,025	5,330	5,690	6,910
*Rating in Square Inches (Soft Coal)	393	461	538	683
Rating in Square Inches (Hard Coal)	334	392	457	581
BTU Capacity Per Hr. at Reg. (Soft Coal)	53,400	62,700	73,200	92,900
BTU Capacity Per Hr. at Reg. (Hard Coal)	45,400	53,300	62,100	79,000
BTU Capacity Per Hr. at Reg. (Stoker Fired)	59,000	69,000	81,000	102,000
BTU Capacity Per Hr. at Reg. (Oil—Gun Type Burner)	61,000	72,000	84,000	107,000
BTU Capacity Per Hr. at Reg. (Oil—Rotary Burner)	72,000	84,000	98,000	125,000
Overall Height of Heating Unit	52¼"	52½"	52¾"	55"
Height of Radiator	32¾"	32¾"	32¾"	35½"
Width of Radiator on Arc	30"	30"	30"	38"
Depth of Radiator	6½"	6½"	6½"	7"
Height of Fire Pot	13½"	13½"	13½"	13½"
Size of Feed Door Opening	10½" high 13½" wide	10½" high 13½" wide	10½" high 13½" wide	10½" high 13½" wide
Size of Ash Pit Door Opening	12" high 16" wide	12" high 16" wide	12" high 16" wide	12" high 16" wide
Diameter of Smoke Outlet	8"	8"	8"	9"
Approximate distance from floor to center of Smoke Outlet	24¾"	24¾"	24¾"	24"
Diameter of Casing	40"	44"	47"	50"
Average Overall Length of Casings	100⅝"	114⅝"	122⅝"	132⅝"
Height of Casings and Hood	66¼"	66¼"	66¼"	66¼"
Height of Lower Section of Casing	30"	30"	30"	30"
Height of Upper Section of Casing	22"	22"	22"	22"
Circumference of Top Casing Ring	125⅝"	138⅝"	147⅝"	157⅝"
Door Opening Required to Admit Drum (Stoker Model)	†	†	26⅝"	29⅝"
Dis. from Center of Drum to Side of Casing (Stoker Model)	†	†	23½"	25"
Dis. from Center of Drum to Rear of Casing (Stoker Model)	†	†	28"	30"
Dis. from Center of Drum to Front of Furnace (Stoker Model)	†	†	17¼"	19¼"
Approximate Shipping Weight Less Casing, Lbs.	745	799	842	964
Approximate Shipping Weight Complete	817	878	930	1060

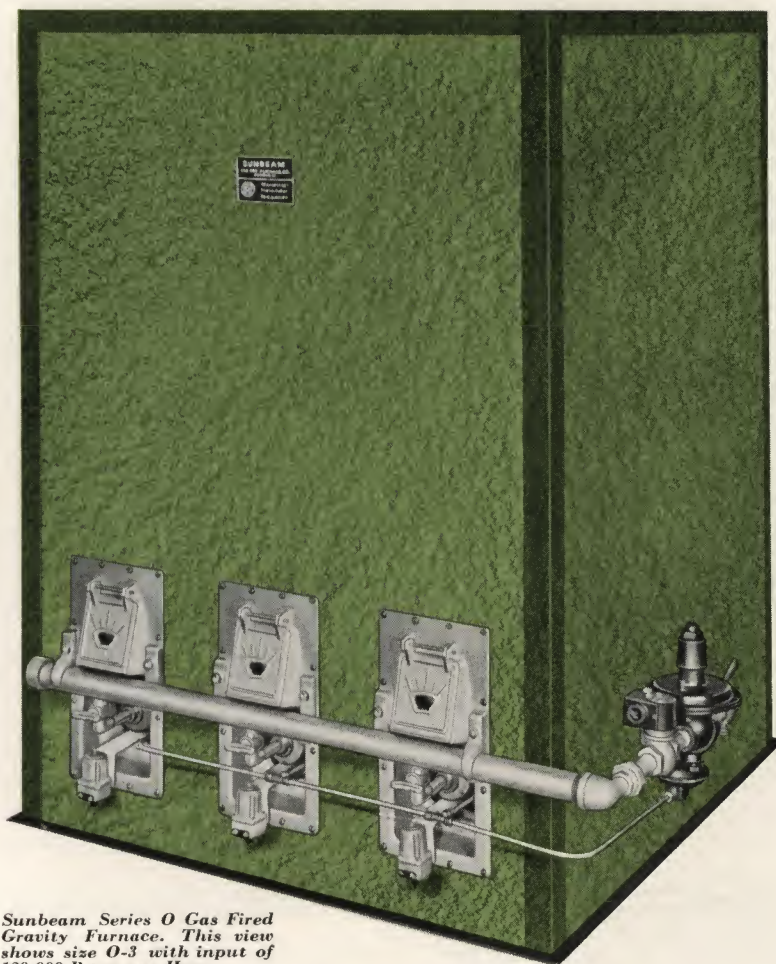
STANDARD EQUIPMENT—Check draft, finishing collars, pokers, draft regulator, chain and pulleys, nuts and bolts.  
 \*Ratings are in accordance with the Standard Code Rating Formula of National Warm Air Heating and Air Conditioning Ass'n.  
 †If stoker is to be used, determine clearance for stoker retort by deducting 3½" (required for fire brick) from inside drum diameter.  
 ‡These sizes are not available in special stoker fired models.



# SUNBEAM

## GAS FIRED FURNACES

### Series O



*Sunbeam Series O Gas Fired Gravity Furnace. This view shows size 0-3 with input of 120,000 B.t.u. per Hour.*

The Series O Sunbeam is a new type of gas fired gravity furnace, with steel heating element. It is attractively modern in appearance and highly efficient in operation. There are four sizes ranging from the No. 0-2 with 80,000 B.t.u. input per hour to the No. 0-5 with an input of 200,000 B.t.u. per hour.

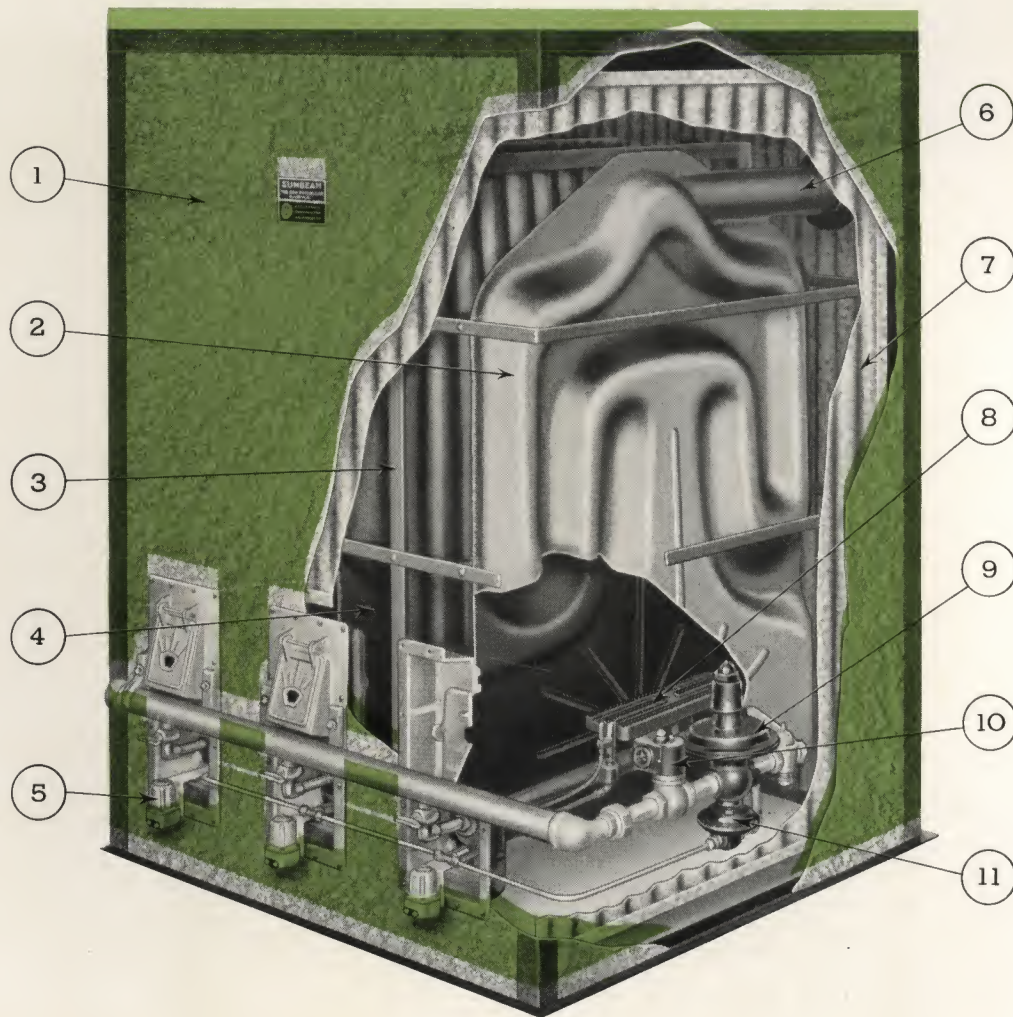


The Series O Sunbeam Gas Fired Gravity Furnaces, because of their surprisingly low prices, bring the benefits of clean, care-free automatic gas heating within the reach of thousands of home owners with limited incomes. Fuel bills are moderate because of the highly efficient manner in which the gas burned in these furnaces is transferred into useable heat. Compact and low, the Series O Sunbeam requires a small amount of basement space for installation.

# THE FOX FURNACE COMPANY, ELYRIA, OHIO

A DIVISION OF AMERICAN RADIATOR AND STANDARD SANITARY CORPORATION





*A View of the Interior of the No. O-3 Sunbeam*

## CONSTRUCTION FEATURES OF SERIES O SUNBEAM GAS FIRED FURNACE

1. **OUTER CABINET**—The dark green enamel trim handsomely sets off the light green crystalline enamel of the casing.
2. **HEATING ELEMENT**—Constructed of steel. Electrically welded to eliminate joints.
3. **RADIATION SHIELD**—Between each two sections is a radiation shield which absorbs heat radiated by the heating elements. These secondary heating surfaces increase the efficiency and capacity of the unit.
4. **AIR CIRCULATING SPACE**—Air circulates uniformly over the ample heat-radiating surfaces.
5. **PILOT THERMOSTATIC SWITCH**—Automatically closes gas valve, thus shutting off the gas supply, if the pilot is extinguished.
6. **FLUE OUTLET MANIFOLD**—Welded inseparably to the heating element, carries exhausted gases to the flue.
7. **INNER CASING**—Made of corrugated galvanized iron. Conserves heat and keeps the outer cabinet cool.
8. **BURNER**—Atmospheric type, designed to burn natural, manufactured or mixed gas. Provides quiet operation.
9. **PRESSURE REGULATOR FOR MAIN GAS LINE**—Maintains uniform gas pressure and constant flame at the burner.
10. **GAS VALVE**—Controlled by a room thermostat, automatically regulates the operation of the burner.
11. **PILOT LINE PRESSURE REGULATOR**—Maintains uniform gas pressure and constant flame at the pilot light.



## HEATING ELEMENT

The heating element of the Series O Sunbeam gas fired furnace is constructed of an especially fine grade of 16 gauge steel having unusually high corrosion and rust-resisting properties. Each heating element is made of two sections. Each section is formed on a gigantic press under a pressure of 500 tons. The two sections are permanently and hermetically sealed together by electric welding machines of the latest type. In effect, each Sunbeam heating element is a jointless, leak-proof unit.

The hot gases rise from the burner, are diverted equally to the front and rear, and are then collected at the central point at the top of the element assuring uniform heat distribution throughout the heating element. Long fire travel is needed to obtain this uniform distribution of heat and, because of this long fire travel, the heat is thoroughly utilized before the products of combustion reach the flue. High efficiency and low fuel consumption result from this design. Gas passages are scientifically streamlined so that the products of combustion pass from burner to flue manifold with a minimum of resistance.

The flue manifold is securely welded to the top of the element, with the inlet opening at the center where the hot gas streams come together. Before the products of combustion reach the flue manifold, they pass through a baffle of cast iron construction which is located near the top of the heating element.

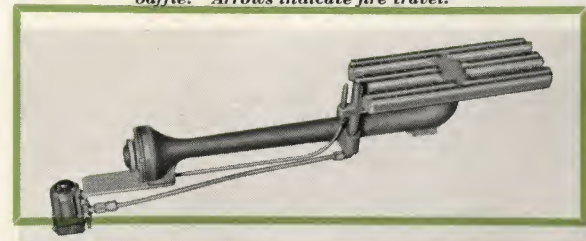


*Steel heating element showing burner and baffle. Arrows indicate fire travel.*

## BURNER AND PILOT

The gas burner, of special design, is located in the center of the combustion chamber and is so situated that there is no impingement of flame on the sides of the heating element. The fuel supply is delivered to the center of the burner so that even distribution of gas is assured.

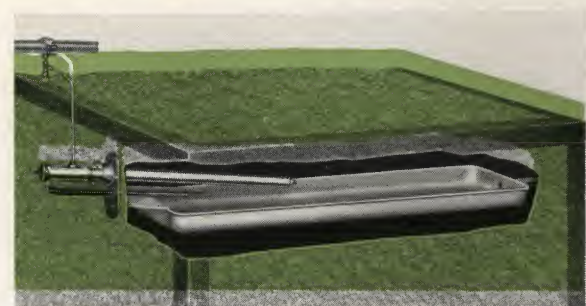
The pilot support is attached to a frame cast on the mixing tube which permanently establishes the position of the pilot in relation to the burner, and prevents the pilot light from being incorrectly located.



*Burner showing pilot mounted securely in position.*

## DRIP HUMIDIFIER

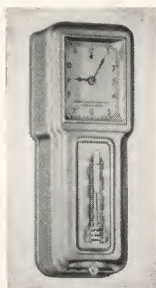
This humidifier connects to the water line. A thermostatic element expands and contracts with the temperature in the bonnet to admit more or less water to the evaporating reservoir. Humidifier is placed in bonnet directly above the heating element. The amount of water evaporated by this humidifier is determined by temperature in bonnet. This humidifier has a manual adjustment to vary flow of water into reservoir and is equipped with an overflow pipe to carry away any excess of water that is not absorbed by the air.



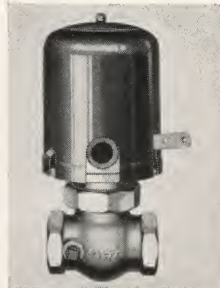
*Drip Humidifier.*



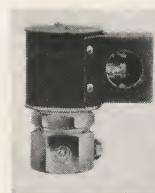
*No. T-11-1  
Plain Thermostat*



*No. T-105-1  
Night and Day  
Electric Clock Thermostat*



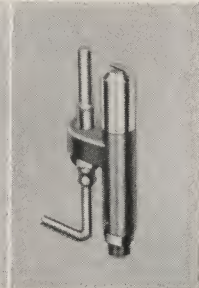
*No. V-15  
Gas Valve*



*No. V-16  
Gas Valve.*



*Switch  
No. C-89 Pilotstatic Pilot*





## B. T. U. RATINGS

Heater Number	A. G. A. Input Rating B. T. U. Per Hr.	A. G. A. B. T. U. Output per Hour at Bonnet A. G. A. Maximum Allowance	Net Available B. T. U. per Hour at Warm Air Registers
O-2	80,000	60,000	51,000
O-3	120,000	90,000	76,500
O-4	160,000	120,000	102,000
O-5	200,000	150,000	127,500

## SQUARE INCH RATINGS

SQUARE INCHES OF BASEMENT PIPE AREA				SQUARE INCHES OF BASEMENT PIPE AREA			
Heater Number	First Floor	Second Floor	Total	Heater Number	First Floor	Second Floor	Total
O-2	460	0	460	O-4	919	0	919
	385	50	435		806	75	881
	310	100	410		693	150	843
	234	150	384		580	225	805
	159	200	359		467	300	767
	84	250	334		355	375	730
	0	305	305		242	450	692
O-3	689	0	689	O-5	129	525	654
	599	60	659		0	605	605
	508	120	628		1149	0	1149
	418	180	598		1036	75	1111
	328	240	568		923	150	1073
	238	300	538		810	225	1035
	147	360	507		697	300	997
	57	420	477		585	375	960
	0	458	458		472	450	922
					359	525	884
					246	600	846
					133	675	808
					0	763	763

## SPECIFICATIONS AND DIMENSIONS

Heater Number	Size Gas Supply Tapping Inches	Number Burners	Diameter Flue Outlet Manifold	Approx. Distance from floor to Center of Flue Outlet Manifold	DIMENSIONS IN INCHES			Approximate Shipping Weight in Pounds
					*Width	*Depth	Height	
O-2	3/4	2	6"	52 1/8"	30 3/4	41 3/4	57	615
O-3	3/4	3	6"	52 7/8"	43 1/4	41 3/4	57	960
O-4	1	4	7"	53 3/8"	55 3/4	41 3/4	57	1320
O-5	1	5	8"	53 7/8"	68 1/4	41 3/4	57	1690

\*Includes width of angle iron base.



# **SUNBEAM** *Series B* **GAS FIRED FURNACE**



*This illustration shows the B-120 model with an input of 120,000 Btu per hour. All casings are attractively finished in green and black crystalline, baked enamel.*

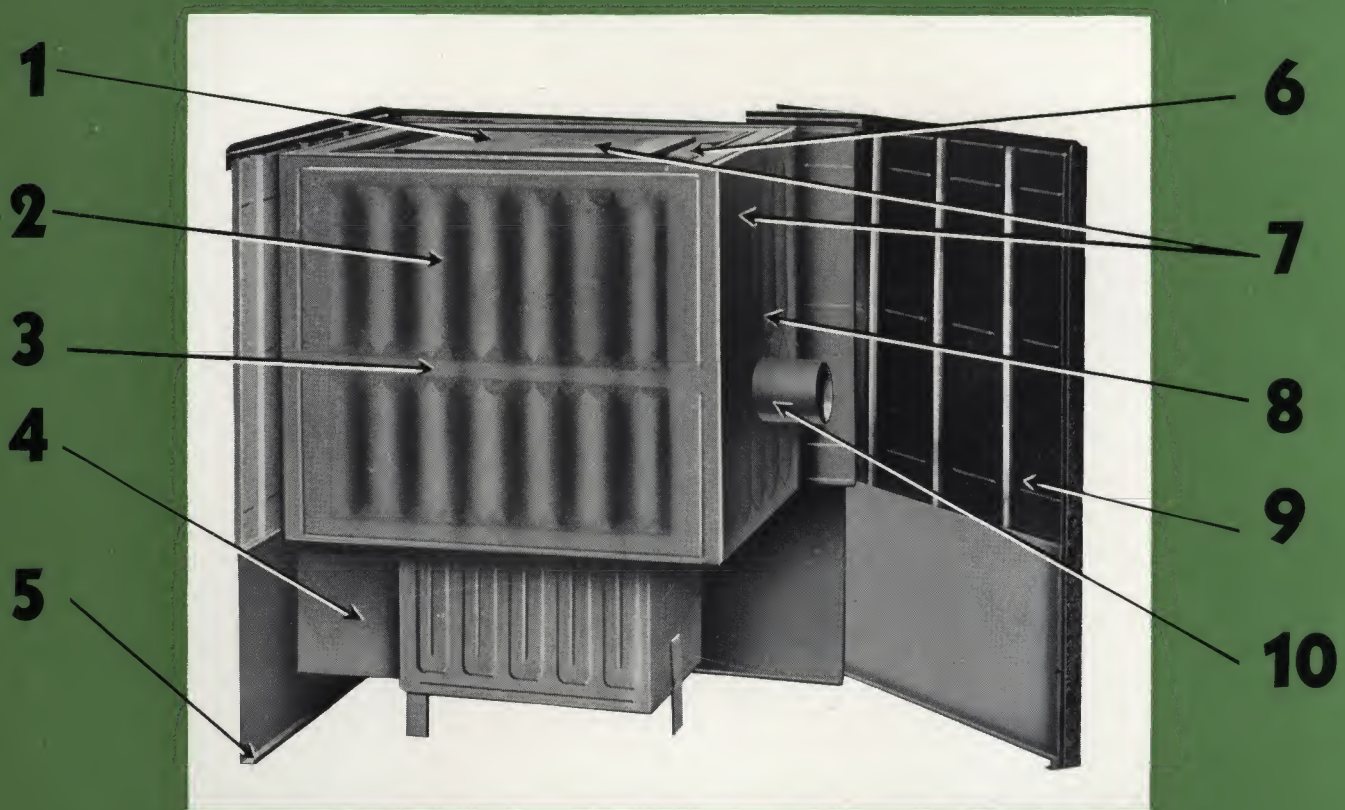
**THE FOX FURNACE COMPANY**

A DIVISION OF **A**<sup>AMERICAN</sup><sub>RADIATOR</sub> & **S**<sup>STANDARD</sup><sub>ANITARY</sub> CORPORATION

**1123 HARRISON STREET, SAN FRANCISCO, CAL.**



## SUPERIOR DESIGN AND CONSTRUCTION PROVIDE THE SUNBEAM WITH MANY DESIRABLE FEATURES



*The "B" Series Sunbeam, with casing partially removed to show the Heating Element*

## A FEW OF THE CONSTRUCTION FEATURES

- 1** The efficient, seamless heating element constructed of heavy heat resisting steel.
- 2** The radiator, also welded into a seamless unit, which provides long fire travel and additional heating surface.
- 3** Location of Baffle in radiator, which separates upper and lower section of radiator and forces the hot products of combustion to pass through the radiator twice before reaching the flue. Small by-pass openings are spaced at frequent intervals so as to sweep the bottom of the radiator with hot gases, thus preventing condensation from forming. This is another exclusive Sunbeam feature.
- 4** The Burner Box Section of Furnace constructed of heavy-weight heat resisting steel. Easily accessible at all times for burner inspection.
- 5** U channel at bottom of casing provides firm, rigid base for the casing. Reduces installation time and cost.
- 6** Large vertical outlet from heating element to radiator, where products of combustion enter the upper section of radiator.
- 7** Heating element and radiator are both centered in the casing to provide uniform temperature in all ducts connected to the furnace.
- 8** Special design of radiator and heating element give these sections maximum stiffness. No objectionable noise can result from the expansion and contraction of this furnace.
- 9** Black metal lining of casing. Is spaced one inch inside of casing and minimizes heat losses into the basement. Liner is provided with horizontal and vertical stiffening beads, and is securely attached to the casing, so that it will not rattle or cause noise under any conditions.
- 10** Vent Pipe through which products of combustion leave radiator after the maximum of heat has been extracted by the furnace. Vertical baffles in the radiator prevent loss of heat by permitting only the cooled gases at the bottom to pass out the vent pipe.

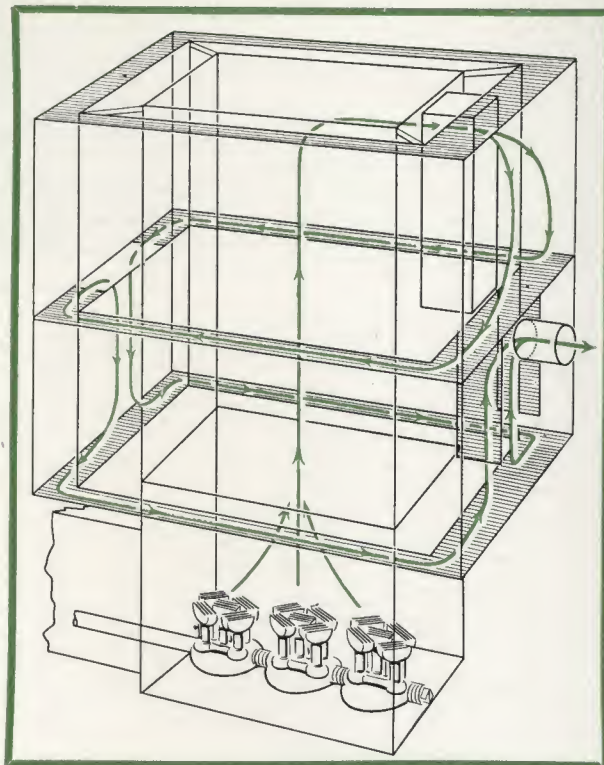


## LONG FIRE TRAVEL AND THOROUGH ABSORPTION OF HEAT

• The illustration opposite shows how the products of combustion rise from the burner to the top of the heating element. They next pass through a large outlet at the rear, into the upper section of the radiator. From this point they divide and are drawn to the front of the radiator where another opening admits them to the bottom section of the radiator from whence they finally pass into the vent at the rear. Baffles located in the radiator on each side of the vent pipe divert the gases downward after the heat has been extracted and before the products of combustion can escape to the chimney; thus, there is no loss of useful heat from the radiator. All products of combustion are retained in the radiator until their useful heat is extracted and only the coldest gases are drawn out from the bottom of the radiator.

• Heat, which is generally lost by radiation through the bottom of ordinary furnaces, is utilized in the

Sunbeam. It pre-heats the gas in the burner manifold, and also the air supply before it is admitted to the burner. Thus, in this advanced heating plant, expert designers have drawn on their ingenuity and experience to increase combustion efficiency by utilizing heat that is ordinarily wasted.



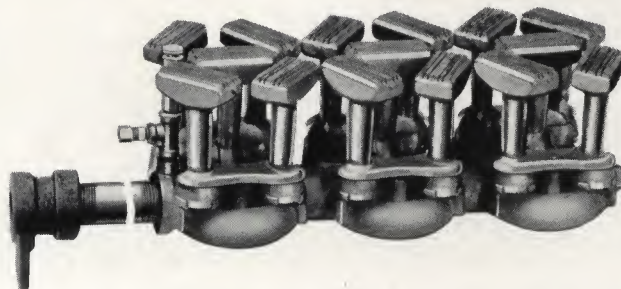
## ADVANCED TYPE OF BURNER FURTHER REDUCES GAS CONSUMPTION

• As mentioned on page 2, this advanced type of burner develops approximately 10% greater capacity than its standard rating, when the burner manifold is cold. For example, the Series B-120 Unit for the first 30 to 45 minutes after it is lighted, liberates approximately 135,000 Btu. Thus, the B Series Sunbeam has oversize capacity just at the time when you want it . . . during the first half hour that it is in operation. The home or building consequently is warmed in a shorter period than with the ordinary furnace.

• With this type of burner a large volume of gas is burned in small quantities in several individual burner heads. Each individual burner

is complete and independent, has its own separate mixer and spud, draws its individual supply of gas and air, and mixes the combination for the most satisfactory combustion at the burner head. These burners are set at the factory and require no further adjustment from either a heating engineer or the user. Air shutters, which usually become clogged with lint or dust, reducing the supply of air to the burner with a consequent reduction in efficiency, are NOT used in this burner.

• Burners are unfailingly ignited by a blue flame pilot, equipped with a brass pilot head and a brass air mixer located outside of the heat zone. The pilot head will not corrode, or be clogged by carbon deposits.



*A battery of 15 burners such as is used with Sunbeam No. B-150*



## NOISELESS OPERATION AND GAS-TIGHT CONSTRUCTION

- All joints in the Sunbeam heating element and radiator are welded with the result that this furnace is a seamless unit from which no gas, soot or dust can escape into the circulating air and enter the living quarters of the home. Safety and clean heating are assured by this construction.

- Furnace noises occur in the ordinary heating plant when cold metal is heated, and expands — and when hot metal cools, and contracts. In designing the B-Series Furnaces, Sunbeam

engineers, familiar with this annoying condition, re-inforced, and designed heating element, radiator and casings so that noise-free operation can be expected in Sunbeam heated homes and buildings.

- Casings will not vibrate or rattle even when a blower is connected to the furnace. An overlap design which is incorporated in all edges of the casing draw the substantially built casings remarkably air-tight, whether the air is circulated under pressure or by gravity.



## EQUIPMENT *and* ACCESSORIES

- All Sunbeam Gas Fired Furnaces have as standard equipment the following: gas pressure regulator; main shut-off valve; pilot valve; and 3 pipe nipples of required size. Any type of automatic or manual control equipment for regulating the operation of the furnace can be used that the home owner may prefer.

- Automatic Humidifiers, for those who desire this feature, and electrically driven blowers, where air delivery under pressure is necessary or advisable, can also be furnished for use with these better heating plants.

- Series "B" furnaces can be equipped with electric safety pilots. The use of safety pilots and thermostatic controls is recommended.

# SUNBEAM

## GAS FIRED FURNACES





**ADVANCED • MORE ECONOMICAL • LONGER-LIVED**

**THE SUNBEAM *Gas Fired* FURNACE Series "B"**

- All of the qualities which you would expect to find in a heating plant sponsored by the world's largest makers of heating equipment, have been incorporated in the new Sunbeam Gas Fired Furnaces, Series B.
- Great heating capacity? This capacity has been built into the Sunbeam by expert designers and engineers. In fact, they have drawn on their wealth of experience and resources to create a furnace that develops more than 10 per cent extra capacity whenever the fire is started — whenever the home or building is cold — whenever heat is needed in a hurry!
- More economical? The design of the burner and the furnace combine to extract from the gas that is burned, the greatest possible number of heat units. Every dollar spent for fuel returns a dollar's worth of heating where the heat is wanted and needed. And Sunbeam Controls will shut off the gas, or turn it lower — either automatically or at the snap of a switch — whenever little or no heat is required. You cannot waste gas, and consequently money, with this better warm air furnace.
- Longer-Lived? Heavier construction, the finest materials available, correct proportions and the exact correlation of all parts assure the long life of these furnaces . . . and much more! They reduce — practically eliminate — the need for servicing, and make bothersome and annoying repairs and adjustments a rare occurrence.
- Quietness of operation has been attained in this heating equipment to a degree that was considered impossible in the past. No sound should ever reveal the presence of a Sunbeam Series B Furnace in any home or building.
- And finally, Sunbeam Series B Furnaces are fully guaranteed against any defects in material and workmanship.
- On the inside pages, you will find the Sunbeam principle of long heat travel and the advanced type of burner illustrated and described in detail. Capacities, dimensions and other data on the 9 sizes of Furnaces are listed on the back page.

**THE FOX FURNACE COMPANY**

A DIVISION OF

**A** AMERICAN  
RADIATOR **&** **S** STANDARD  
ANITARY

CORPORATION

**1123 HARRISON STREET • SAN FRANCISCO, CAL.**



# SUNBEAM

## *Gas Fired Furnace* SERIES "B"

### DIMENSIONS AND CAPACITIES

Frc. No.	BTU Input Per Hr.	Maximum BTU Out-put of Bonnet Per Hr.	Approx. Warm Air Pipe Capacity	Vent Pipe Size	Gas Pipe Size	Casings Less Diverter			Heating Element			Shipping Weight Approx.
						Width Front	Depth Sides	Height W/Pitch Top	Width Front	Depth Sides	Height Above Floor	
60B	60,000	48,000	300	4"	1½"	30	30	55	23	23	39½	230
80B	80,000	64,000	400	4"	1½"	30	30	55	23	23	39½	240
100B	100,000	80,000	500	5"	¾"	35	35	58	28	28	43½	310
120B	120,000	96,000	600	5"	¾"	35	35	58	28	28	43½	325
150B	150,000	120,000	750	6"	1"	36¼	43½	58	28	35	43½	425
*180B	180,000	144,000	900	6"	1"	41½	54½	58	32	45	43½	525
*240B	240,000	192,000	1,200	2-5"	1¼"	70	35	50	56	28	43½	650
*300B	300,000	240,000	1,500	2-6"	1¼"	72½	43½	50	56	35	43½	850
*360B	360,000	288,000	1,800	2-6"	1¼"	83	54½	50	64	45	43½	1050

\*Opening clearance required: 180B=30", 240B=29", 300B=29", 360B=30".  
NOTE: 240B, 300B, 360B furnished with flat tops only.

● When ordering specify — kind of gas (natural or manufactured) — heating value and specific gravity.

● Warm air pipe capacity is based on standard practice. Maximum BTU output at bonnet is based on tests conducted in our own laboratory.

● To determine the actual pipe capacity, apply the following rules. If all runs are to first floor, multiply the BTU output by .80 (this allows for a 20% loss between the bonnet and the registers) and divide by 110; the result is the pipe capacity if all runs are to the first floor. For a two-story house where the heat loss is about equally divided between the first and second floors, multiply by .80 and divide by 136. Where all runs are to a second floor, multiply by .80 and divide by 166.

● Reduce the BTU input from 3 to 5% for each 1000 feet of elevation above sea level at the point of installation.

● The maximum BTU output at the bonnet per hour is about 6 to 10% higher when furnace is installed with a blower.

● If the furnace is located some distance from the meter, increase the gas line one or two sizes as necessary to carry full pressure to the furnace regulator.

● The heating element of the 180-B and 360-B is shipped knocked down.

● The letter "B" is a designation of a model and not of quality. The series "B" furnaces are made of the very finest of materials.

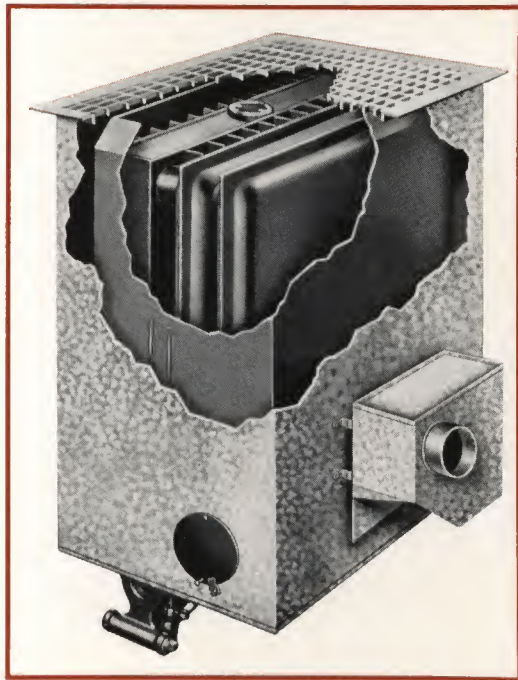
● All dimensions and weights are approximate.

● It is good practice to over-size a furnace 20% for the job to allow for fluctuations in gas pressure and other exigencies.

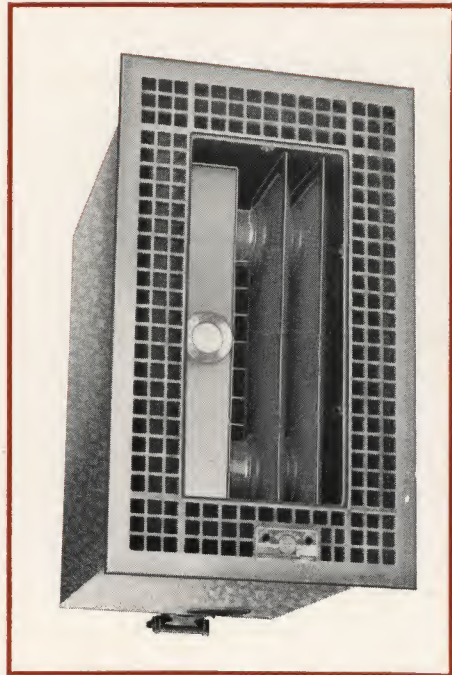


# SUNBEAM

## GAS FLOOR FURNACES



Interior view of the No. 470 F. C. showing steel heating element, inner lining, galvanized steel casing, lighting hole cover, down draft diverter and attractive cast iron grille.



In this top view of Series F. C. the center section of the sturdy, two piece, cast iron grille is removed to show heating element and inner liner which is bolted to immovable section of grille.

### HEAT AND HEALTH, COMFORT AND CONVENIENCE

*With Low First Cost and Low Operating Cost*

A home or building with or without a basement can enjoy the benefits of warm, circulating air—furnace heating—with the Sunbeam Floor Furnace. As long as the heating plant is under fire, warm, balmy, stimulating air circulates through the attractively finished cast iron grille to every corner of every room. Solid comfort and excellent health are enjoyed in the home that is Sunbeam-heated.

This heating plant is so inconspicuous, and makes so few demands for attention that you hardly know that it is a part of the household equipment. The snap of a switch or the turn of a key is the maximum attention that it requires.

With Thermostatic control no attention whatever is required and your home is always most economically heated to just the right temperature—any temperature you desire. Its low first cost and low operating cost result from the experience and skill and ingenuity of its designers, and the facilities of its producers, the world's largest makers of heating equipment.

The Sunbeam Series F. C. Floor Furnace is made in five sizes—20,000; 27,500; 37,000; 47,000; and 60,000 B.T.U. input per hour.

On the following page the superiorities and construction features of this better heating plant are illustrated and explained.

## THE FOX FURNACE COMPANY

A DIVISION OF

AMERICAN RADIATOR AND STANDARD SANITARY CORPORATION

1123 HARRISON STREET - SAN FRANCISCO, CALIFORNIA



# SUNBEAM GAS FLOOR FURNACES

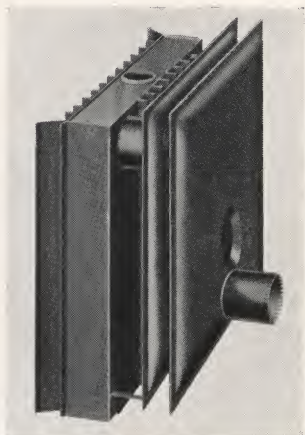
In the Sunbeam Series F. C. Floor Furnace is combined all the excellent qualities that you would expect to find in a heating plant for the finest of homes, and many superiorities which result in longer life and lower operating cost.

The Sunbeam Floor Furnace is a warm air system which circulates healthful, pleasant atmosphere uniformly throughout the home. Air from the floor is drawn into the unit, between the inner liner and outer galvanized casing. It is

then passed into the heating section, is warmed and delivered back to the living rooms.

The aluminum treated iron inner lining confines the warmed air to the heating chamber thus providing efficient air circulation.

The cast iron grille is made in two sections. It has the two desirable qualities of strength and attractive appearance to a degree found in no other type of grille.

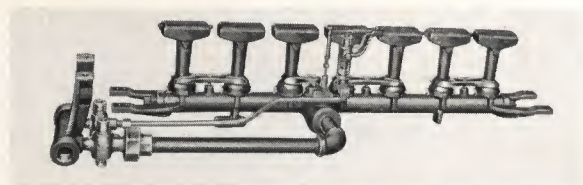


The durable, leakproof heating element of the Sunbeam No. 470 F. C. Furnace.

## THE HEATING ELEMENT

In the Sunbeam heating element, long life is assured by the use of heavy, heat-resisting steel. Permanently gas-tight construction results from the fact that all joints are welded. There are no seams, cracks or other openings through which gas, fumes, or soot can gain entrance into the living quarters. High efficiency and capacity have been obtained by ingenious designers who have incorporated a large amount of heating surface and long fire travel in this heating element. And this money-saving feature is obtained without the installation of baffles inside of the heating element. In this heating element expansion and contraction take place silently because of the heavy "ribs" or elevations which are pressed into the heavy steel plates.

## BURNER



The battery of 7 burner heads used with the Series 370 F. C. furnace and Safety Pilot—an optional feature—is shown in this illustration.

The Sunbeam has extra capacity when you need it—during the first thirty minutes of operation—because this advanced type of burner develops approximately 10% greater capacity than its standard rating when burner and manifold are cold. Each burner head operates independently, drawing its own supply of gas and air and mixing the proper proportion for economical and efficient combustion.

An umbrella-type pilot is standard equipment on this Sunbeam Series. Safety pilot is optional.

A draft diverter over the vent connection protects the burner from down-drafts. Uniform gas pressure is assured by a low-pressure regulator at the gas supply connection.

## OPTIONAL CONTROL EQUIPMENT — ALL SIZES

**MANUAL OR KEY CONTROL.** With manual control the gas pilot is lighted at the start of the heating season or when desired. The main burner is then turned on or off—high, low or any intermediate stage by a loose key at the face of the grille.

**ELECTRIC CONTROL.** With this type of control a switch is placed at a convenient location. This switch has two signal lights indicating the operating position of the electric valve. Two rates of burner capacity can be obtained by turning the switch button—high and low flame, both adjustable.

**THERMOSTATIC CONTROL.** A thermostat will maintain the temperature you desire by automatically opening and closing the gas valve according to heat requirements.

**SAFETY PILOT** which automatically cuts off gas supply in case the pilot light is extinguished.

**ELECTRIC SPARK LIGHTER** which automatically ignites the pilot when the gas valve is opened.

## F. C. FLOOR FURNACE SPECIFICATIONS

Frc. No.	AGABtu Input Per Hr.	AGABtu Output Per Hr.	Approx. Shipping Weight	Approx. Heating Capacity in Cu. Ft. of Space		Outside Grille Dimension	Frc. Casings Dimensions		Overall Depth Including Burners	Gas Supply Pipe	Dia. Vent Outlet	Bottom Grille to Top of Vent
				35°	Zero		Width	Length				
200-FC	20,000	14,000	100	6,000	3,000	16 1/2" x 17 1/2"	14"	15"	35"	1 1/2"	3"	18"
275-FC	27,500	19,250	130	7,000	3,500	16 1/2" x 26 1/2"	14"	24"	35"	1 1/2"	3"	18"
370-FC	37,000	25,900	170	9,000	4,500	17 3/4" x 32 1/2"	16"	30"	35"	1 1/2"	4"	18"
470-FC	47,000	32,900	180	11,000	5,500	20" x 32 1/2"	17 1/2"	30"	35"	1 1/2"	4"	18"
600-FC	60,000	42,000	200	14,000	7,000	24" x 32 1/2"	21 1/2"	30"	35"	1 1/2"	5"	18"

NOTE: Input and output ratings are in accordance with ratings published by the American Gas Association testing laboratories.





# SUNBEAM

## GAS FLOOR FURNACES

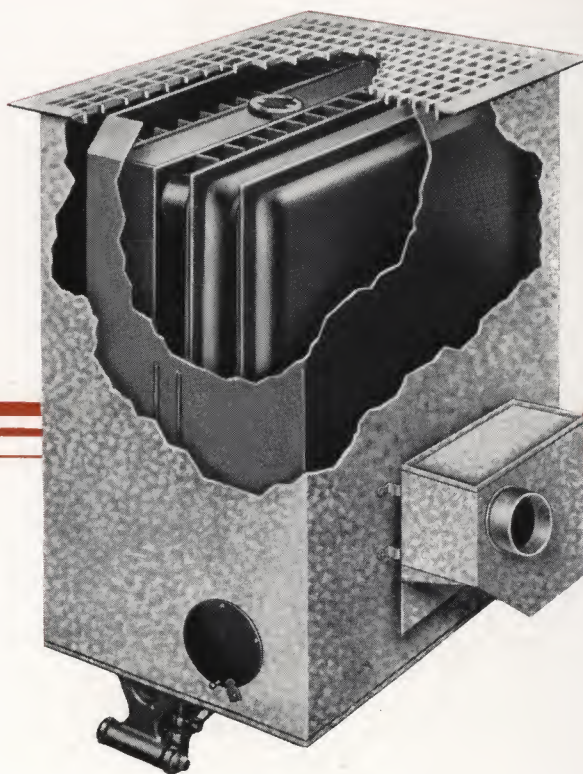
*Healthful comfort  
at low cost . . . . .*

Enjoy in your home or larger building the benefits of warm circulating air by installing a Sunbeam Gas Fired Floor Furnace.

When you have this heating plant in operation you can almost forget about it so silently and satisfactorily does it operate and so few demands does it make for attention. Snap a switch—or turn a key—that is all it requires. Or—better yet—with thermostatic controls no attention whatever is required. Comfortable heat is economically supplied automatically.

The Sunbeam Floor Furnace is a complete floor furnace, gas fired gravity type. It is installed in a floor opening and requires no pipes.

One furnace is sufficient for smaller buildings. In large stores, churches, etc., two or more may be required for proper heating and circulating of air.



*Cutaway view of the No. 50 F. S. showing the galvanized steel casing, the inner lining, the heating element, the floor grille and the cleanout cover.*

The Sunbeam Series F. S. Floor Furnace is made in six sizes 20,000, 30,000, 40,000, 50,000, 60,000 and 80,000 BTU input per hour.

On the next page the superiorities and construction features of this better floor furnace are illustrated and explained.

See your Sunbeam dealer for further information.

### THE FOX FURNACE COMPANY

A DIVISION of **A**ERICAN **R**ADIATOR & **S**TANDARD **S**ANITARY CORPORATION

1123 HARRISON STREET

SAN FRANCISCO, CALIFORNIA



# SUNBEAM GAS FLOOR FURNACES

## CONSTRUCTION AND OPERATION

The outer casing of the Sunbeam Floor Furnace is made of galvanized steel. The floor grille is of fabricated steel construction finished in attractive dull brass. Through the center area of the grille the warm air is discharged into the room. Through the outer section of the grille is drawn the cold air supply which passes downward between the casing and the inner lining, is heated and returned to the room.

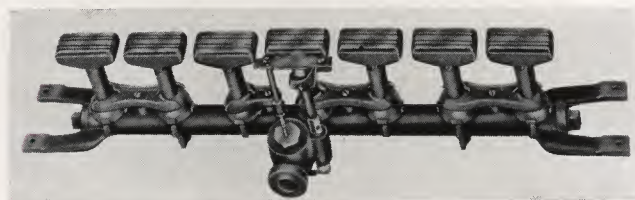
The inner lining is of aluminum treated iron. It prevents heat radiated by the heating element from escaping to the return air compartment. This assures efficient recirculation of air.

### BURNER

This advanced type of burner develops approximately 10% greater capacity than its standard rating when the burner and manifold are cold. Thus the Sunbeam has oversize capacity when you need it . . . during the first half hour of operation. Each of the individual burner-heads draws its own supply of air and gas and mixes the proper combination for efficient combustion.

The umbrella-type pilot used with this burner automatically ignites the gas when the burner gas-valve is opened. A safety pilot is optional.

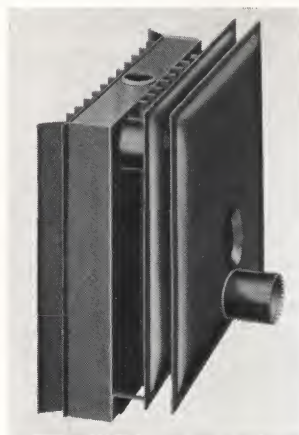
The burner is protected from down-drafts by the draft diverter which covers the vent connection. A low-pressure gas regulator maintains uniform gas pressure despite line fluctuations.



*The F. S. Series furnaces are equipped with safety pilot—  
an optional feature*

### HEATING ELEMENT

The Sunbeam heating element, through its superior design and materials, offers features that you expect in a heating plant for the finest of homes. Long life is assured through the use of heavy, heat resisting steel. All joints are welded so that the element is permanently sealed against the escape of fumes or soot. Ingenious design provides a large heating surface and long fire travel. This assures thorough combustion and helps reduce fuel bills. The combustion chamber is so designed that no flame touches the metal; damage, which results when the flame burns directly against the metal, is avoided in this heating plant. Scientific construction allows contraction and expansion to take place without buckling noises.



*The Gas-tight, long lived heating  
element of the No. 50 F. S.*

### OPTIONAL CONTROL EQUIPMENT—ALL SIZES

**MANUAL OR KEY CONTROL.** With manual control the gas pilot is lighted at the start of the heating season or when desired. The main burner is then turned on or off—high, low or any intermediate stage by a loose key at the face of the grille.

**ELECTRIC CONTROL.** With this type of control a switch is placed at a convenient location. This switch has two signal lights indicating the operating position of the electric valve. Two rates of burner capacity can be obtained by turning the switch button—high and low flame, both adjustable.

**THERMOSTATIC CONTROL.** A thermostat will maintain the temperature you desire by automatically opening and closing the gas valve according to heat requirements.

**SAFETY PILOT** which automatically cuts off gas supply in case the pilot light is extinguished.

**ELECTRIC SPARK LIGHTER** which automatically ignites the pilot when the gas valve is opened.

Frc. No.	AGA Btu Input Per Hr.	AGA Btu Output Per Hr.	Approx. Shipping Weight In Lbs.	Approx. Heating Capacity In Cu. Ft. Of Space		Outside Dimension Of Grille (Inches)	Frc. Casings Dimensions			Gas Supply Pipe	Diameter Of Vent Outlet	Bottom of Grille To Top Of Vent
				35°	Zero		Width (Inches)	Length (Inches)	Overall Depth Including Burners (Inches)			
20-FS	20,000	14,000	85	6,000	3,000	16 1/8 x 17	14 1/4	15 1/4	35	1/2"	3"	17"
30-FS	30,000	21,000	120	8,000	4,000	16 1/8 x 26 1/4	14 1/4	24 1/4	35	1/2"	3"	17"
40-FS	40,000	28,000	160	10,000	5,000	17 3/4 x 32 1/4	16	30 1/4	35	1/2"	4"	17"
50-FS	50,000	35,000	175	12,000	6,000	20 1/8 x 32 1/4	18 1/4	30 1/4	35	1/2"	5"	17"
60-FS	60,000	42,000	190	14,000	7,000	23 3/4 x 32 1/4	21 1/2	30 1/4	35	1/2"	5"	17"
80-FS	80,000	56,000	220	18,000	9,000	28 1/8 x 32 1/4	26 1/2	30 1/4	35	3/4"	5"	17"

NOTE: Safety pilot standard equipment on 80-F. S. only. Optional on other sizes. Safety pilot is integral part of the gas manifold of burner and cannot be ordered separately.

NOTE: Input and output ratings are in accordance with ratings established by the American Gas Association testing laboratories.

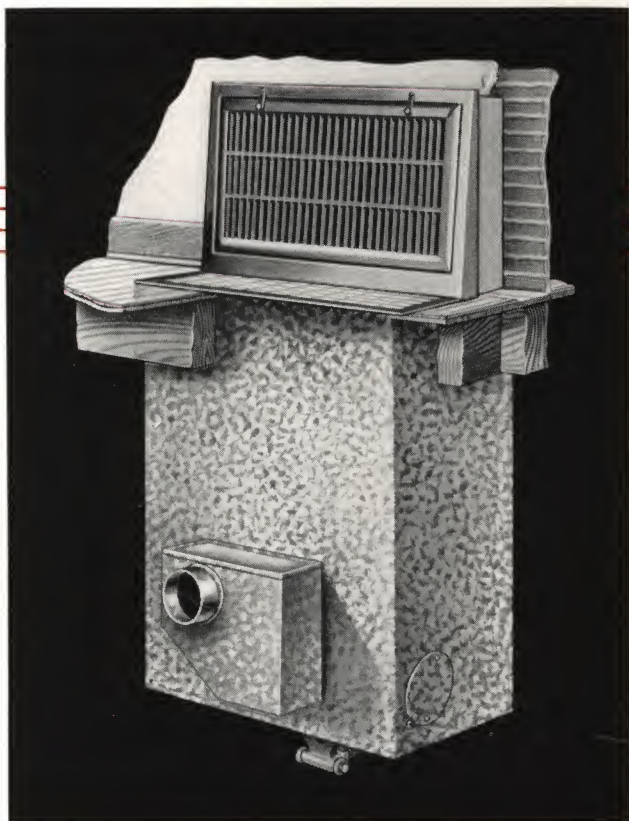
NOTE: 80-FS, if used with natural gas, can be supplied with 1/2" supply pipe and valve. If used with manufactured gas of 550 B. t. u. or less, use 3/4" supply pipe and valve.



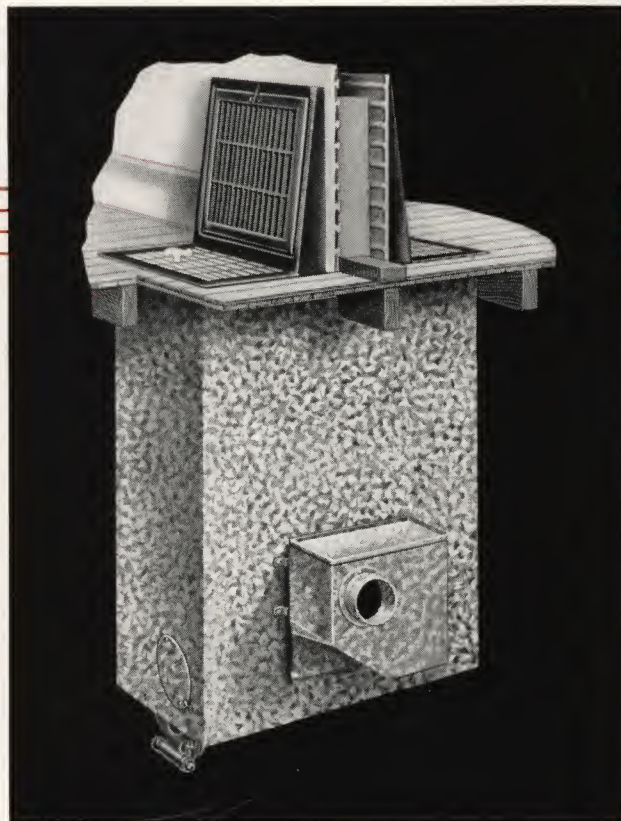


# SUNBEAM

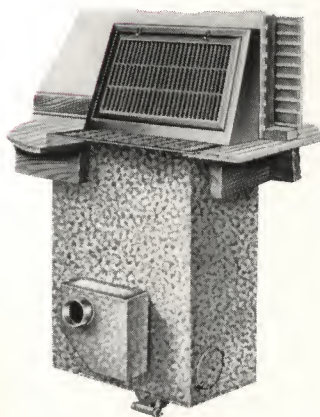
## WALL REGISTER FURNACES



Series S.R. The register box is inserted into an opening in the side wall and connected to a standard baseboard register.



Series D.R. The register box of this furnace is placed in the partition and supplies heat through two registers, one on each side of the partition.



Series S.R.O.—For installation in existing homes. The register and register box are so designed that it is not necessary to cut into the plastered wall.

• • • • **F**or the home you own  
For the home you buy

To the excellence of Sunbeam Gas Floor Furnaces is added a new feature of great advantage to the home owner—wall registers. It is no longer necessary to provide a space in the floor for your heating unit. These new furnaces are installed in the floor below a partition and a register or registers, installed in the baseboard. This feature saves space, particularly in small rooms or hallways, and avoids altering rugs and carpeting which otherwise would cover a floor register.

These Sunbeam Units are complete gravity type furnaces which supply circulating warmth, continuously or intermittently as you desire. The Series S.R. and S.R.O. are designed for heating single rooms in residences or small buildings. The Series D.R. is equipped with two registers and heats two adjoining rooms.

Details of operation and construction of these furnaces are given on the reverse side of this circular. Your Sunbeam dealer will be glad to give you further information.

**THE FOX FURNACE COMPANY**

A DIVISION OF **AMERICAN** & **STANDARD**  
**RADIATOR** **SANITARY** CORPORATION

1123 HARRISON STREET • SAN FRANCISCO, CALIFORNIA



# SUNBEAM WALL REGISTER FURNACES

## CONSTRUCTION AND OPERATION

Sunbeam Wall Register Furnaces are encased in galvanized steel. Cool air is drawn off the floors through the fabricated steel cold air grille installed in the floor below the registers. The air passes around the heating element, is warmed and returned to the rooms through side wall registers. These registers are built of fabricated steel and provide an unusually large free air area. Warm air riser pipe can be taken off top of register box for heating one or two rooms on second floor.

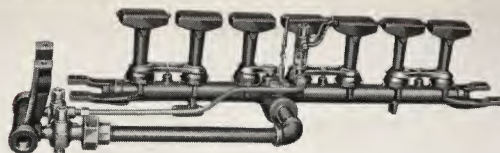
## HEATING ELEMENT

The excellent design of the Sunbeam heating element combined with the heavy, heat resisting steel used in its construction assures the long life of the furnace and the lasting satisfaction of the owner. Welded joints, permanently leak-proof; large heating surface and long fire travel; "fin-type" radiation chambers; no impingement of flame on the sidewalls; protection against expansion and contraction strains—these are some of the features that constitute the superiority of the Sunbeam.

## BURNER

The Sunbeam burner consists of a number of burner heads. Each draws an individual supply of air and gas and mixes the proper combination for efficient combustion. The blue flame umbrella-type pilot used with this burner instantly ignites the gas when the gas valve is opened. The burner is protected from down drafts by a

draft diverter which covers the vent connection. Constant fuel pressure is maintained by the low pressure gas regulator.



## OPTIONAL CONTROL EQUIPMENT —All Sizes

**Manual or Key Control.** With manual control the gas pilot is lighted at the start of the heating season or when desired. The main burner is then turned on or off—high, low or any intermediate stage by a loose key at the face of the grille.

**Electric Control.** With this type of control a switch is placed at a convenient location. This switch has two signal lights indicating the operating position of the electric valve. Two rates of burner capacity can be obtained by pressing the switch button—high and low flame, both adjustable.

**Thermostatic Control.** A thermostat will maintain the temperature you desire by automatically opening and closing the gas valve according to heat requirements.

**Safety Pilot** which automatically cuts off gas supply in case the pilot light is extinguished.

**Electric Spark Lighter** which automatically ignites the pilot when the gas valve is opened.

## SERIES S. R. SIZES AND CAPACITIES

SINGLE WALL REGISTER FURNACES, MODEL S.R.

Furnace Number	RATINGS B.T.U. per Hour		*Size Floor Opening Required	Overall Cold Air Floor Grille Size	Size Wall Opening Required (W) (H)	Wall Registers Size	Overall Furnace Depth	Gas Conn. Diam.	Vent Conn. Diam.	Approx. Shipping Weights (Crated)
	Input	Output								
20 SR	20,000	14,000	15 1/4" x 14 1/4"	8" x 17 1/4"	14 1/4" x 12 3/4"	(1) 10" x 13"	35"	1/2"	3"	120
30 SR	30,000	21,000	24 1/4" x 14 1/4"	8 1/2" x 26 1/4"	23 1/4" x 12 1/4"	(1) 10" x 22"	35"	1/2"	3"	160
40 SR	40,000	28,000	30 1/4" x 16"	12 1/2" x 32 1/4"	23 1/4" x 12 1/4"	(1) 10" x 22"	35"	1/2"	4"	185
50 SR	50,000	35,000	30 1/4" x 18 1/4"	14 1/2" x 32 1/4"	23 1/4" x 12 1/4"	(1) 10" x 22"	35"	1/2"	5"	195

## SINGLE WALL REGISTER FURNACES FOR OLD HOUSE INSTALLATION, MODEL S.R.O.

20 SRO	20,000	14,000	15 1/4" x 14 1/4"	(1) 8" x 17 1/4"	No Wall Opening Required	(1) 10" x 13"	35"	1/2"	3"	120
30 SRO	30,000	21,000	24 1/4" x 14 1/4"	(1) 8 1/2" x 26 1/4"	No Wall Opening Required	(1) 10" x 22"	35"	1/2"	3"	160
40 SRO	40,000	28,000	30 1/4" x 16"	(1) 16 3/4" x 32 1/4"	No Wall Opening Required	(1) 10" x 22"	35"	1/2"	4"	185
50 SRO	50,000	35,000	30 1/4" x 18 1/4"	(1) 18 3/4" x 32 1/4"	No Wall Opening Required	(1) 10" x 22"	35"	1/2"	5"	195

## SERIES D. R. SIZES AND CAPACITIES

DOUBLE WALL REGISTER FURNACES, MODEL D.R.

Furnace Number	RATINGS B.T.U. per Hour		*Size Floor Opening Required	Overall Cold Air Floor Grille Size	Size Wall Opening Required (W) (H)	Wall Registers Size	Overall Furnace Depth	Gas Conn. Diam.	Vent Conn. Diam.	Approx. Shipping Weights (Crated)
	Input	Output								
20 DR	20,000	14,000	14 1/4" x 15 1/4"	(2) 5 1/2" x 16 1/8"	14 1/4" x 12 3/4"	(2) 10" x 13"	35"	1/2"	3"	120
30 DR	30,000	21,000	14 1/4" x 24 1/4"	(2) 8" x 16 1/8"	14 1/4" x 12 3/4"	(2) 10" x 13"	35"	1/2"	3"	160
40 DR	40,000	28,000	16" x 30 1/4"	(2) 11" x 18"	15 1/4" x 15 1/4"	(2) 12" x 14"	35"	1/2"	4"	185
50 DR	50,000	35,000	18 1/4" x 30 1/4"	(2) 11" x 20 1/8"	15 1/4" x 15 1/4"	(2) 12" x 14"	35"	1/2"	5"	195
60 DR	60,000	42,000	21 3/4" x 30 1/4"	(2) 11" x 24"	19 1/4" x 15 1/4"	(2) 12" x 18"	35"	1/2"	5"	225

NOTE—Distance from bottom of grille to top of vent pipe—17" on all sizes and models.

\*NOTE—Dimension parallel with wall is given first.

NOTE—Input and output ratings are in accordance with ratings published by American Gas Association Testing Laboratories.





# SUNBEAM

## Forced Air GAS FURNACE

### A COORDINATED HEATING, CIRCULATING, VENTILATING and FILTERING UNIT

**T**HE SUNBEAM Forced Air Gas Furnace is a complete heating, circulating, ventilating and filtering Unit. It is equipped with a highly efficient gas-fired warm air heating element, coordinated blower unit, air filters and automatic controls—all encased in a compact steel cabinet finished in attractive two-tone Green Art Metal Enamel.

This Unit is quiet and efficient in operation. The silent blower assures quick delivery of heat, healthful ventilation and air circulation. Because the air is delivered under pressure, stratification is prevented and drafts are eliminated.

### OPERATES 12 MONTHS OF THE YEAR HEATS IN WINTER *Ventilates in Summer*

- The Sunbeam Forced Air Unit is designed to supply comfortable, healthful atmosphere all year 'round.

During the winter months, the blower circulates filtered warm air, of the temperature desired, to every corner of every room.

The furnace and ducts cannot overheat as an independent modulating thermostat limits the amount of heat which can be generated. Even when registers are partially or entirely closed, a safe, uniform temperature is maintained in the system. The burner, controlled by a room thermostat, is constantly regulated to supply actual heat requirements. This automatic control assures economical burning of fuel.

When the heating season is past, the Sunbeam can be operated as a cooling, ventilating and filtering system. The blower speed can be increased by a variable-speed pulley to provide approximately 25 per cent greater air delivery. This increase in air circulation gives a desirable cooling effect and provides healthful ventilation. Through an "outside" air duct, cool night air can be drawn into the system. This will reduce the house temperature to that of outdoors in a short period. Air Filters continue to remove dust, bacteria and other foreign matter.

### Suitable for practically all types of buildings

- The rapid delivery of a large volume of warm air makes the Sunbeam Forced Air Furnace suitable for homes, schools, churches and small commercial buildings. The forced air principle employed in this unit increases its efficiency, and results in a larger volume of heating capacity than provided by a gravity furnace burning the same amount of fuel. The air can be discharged from the top or bottom of the unit. When desired, a special top, which is equipped with adjustable louvers, and which eliminates the need for ducts, can be furnished.



Sunbeam Series T Forced Air Gas Furnace

### No Basement Required

- Any convenient first or second floor location (kitchen, service porch or unused hall space) can be used for this furnace; no basement is required. The unit can be connected, by ducts, to warm air registers in the rooms. The powerful blower assures positive delivery of warm, filtered air to every corner of every room.

### Easy to Install

- These units are very simple to install as they are shipped completely assembled. The control box (see description on last page) is completely wired. It is only necessary to connect the gas line and room thermostat, plug in the electric cord, as you would with a radio or washing machine, and the Unit is ready to operate.

The Sunbeam Forced Air Furnace is available in two models; the Series T for use with warm air and return air ducts, and the Series TL which is a Floor Type Unit and requires no ducts.

# THE FOX FURNACE COMPANY

A DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

1123 HARRISON STREET

SAN FRANCISCO, CALIFORNIA



# SUNBEAM *Forced Air* GAS FURNACE

## The Modern Method of Heating and Ventilating

● The Sunbeam Forced Air Furnace offers the latest scientific method of warming and circulating the air within a building.

The principle of forced circulation as applied to furnaces has become well recognized. A unit in which this principle is incorporated has higher efficiency, due to rapid heat delivery, and gives

increased satisfaction through uniform distribution of cozy warmth.

Although there is a small extra cost for installing an air recirculating duct system, this cost is more than compensated for by the ideal indoor atmosphere resulting and by fuel savings which continue for the long life of the unit.

## Air Can Be Discharged From Top or Bottom of Unit

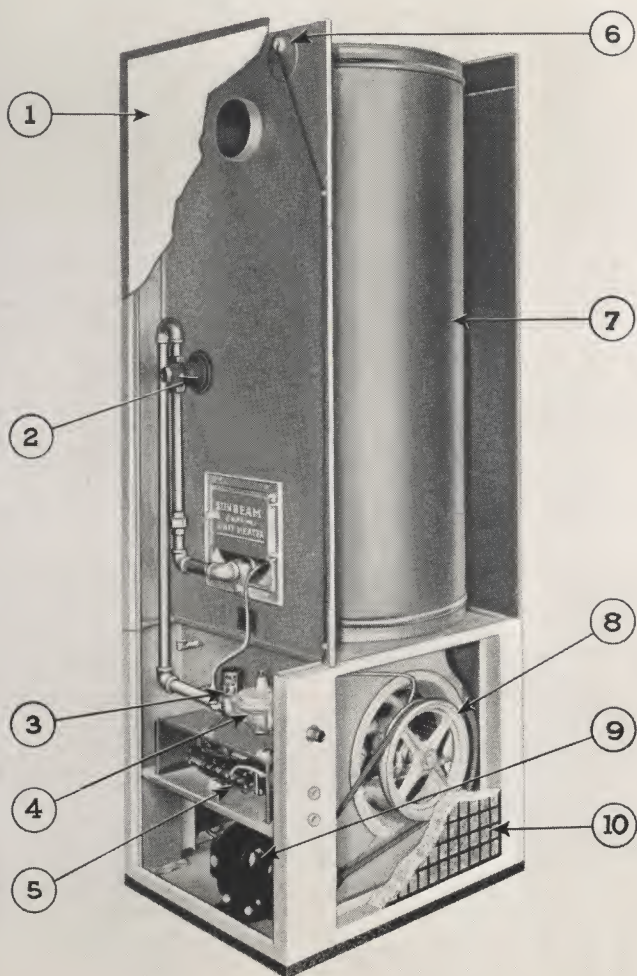
● The standard Forced Air Unit is so designed that return air ducts running under the floor can be connected to the filter section in the lower side panels. Warm air is discharged from the top of the Unit and delivered through ducts in the attic to warm air registers located near the ceiling of the rooms.

However, this Unit can be furnished, when desired, equipped to discharge warm air downward, and to deliver it through warm air ducts

under the floor connected to conventional floor or baseboard registers, or through risers to wall registers located near the ceiling.

It is not always practical to install filters in "down" discharge installations, because of the construction of the building or lack of space. Therefore filters are not furnished as standard equipment on Sunbeam Forced Air Furnaces when the "down" discharge model is used.

## INTERIOR VIEW OF SUNBEAM FORCED AIR FURNACE



- 1 CABINET. Heavy sheet steel. Finished in green crystalline enamel. Harmonizes in the most tastefully decorated home.
- 2 COMBINATION MODULATING AND LIMIT CONTROL. Automatically adjusts gas flame to actual heat requirements and maintains air delivery at uniform temperature. When heat is required in all rooms the fuel supply is at maximum. If a register is closed, gas supply is proportionately decreased.
- 3 GAS VALVE. Controlled by room thermostat. Gas is automatically turned on and off according to heating requirements.
- 4 LOW PRESSURE REGULATOR. Maintains constant gas pressure at burner, insuring dependable burner operation during fluctuations in main line pressure.
- 5 ELECTRICAL CONTROL PANEL. Transformer, fusetron, binding posts and relay are assembled on this panel and wired at the factory.
- 6 BLOWER CONTROL. Eliminates delivery of cold air by preventing blower from operating until after furnace has reached a proper temperature.
- 7 RADIATION SHIELD. Surrounds heating element and provides an insulating air space to keep outer cabinet cool.
- 8 BLOWER. Centrifugal type, with forward curved blades.
- 9 MOTOR. Long lived and quiet. Does not cause radio interference.
- 10 AIR FILTERS. Efficiently extract foreign matter from the air stream. Only clean air free of lint, soot dust, dirt, and bacteria is circulated. Pollen which aggravates those suffering from hay fever and pollen asthma is also removed from the air.



# SUNBEAM *Forced Air* GAS FURNACE

## SERIES TL

### No Ducts Required

● The Sunbeam Series TL Forced Air Furnace is designed to heat, filter and circulate the air in large open areas such as stores, shops, factories, lofts, halls and auditoriums, whose heating requirements are within the capacity of this heating plant.

This Series does not require warm air or return air ducts. The Unit is converted into a Floor Type unit by means of a special top having adjustable louvers on three sides through which a constant supply of clean warm air is discharged directly into the room. The louvers can be adjusted to deliver at the proper angle the desired volume of air supply.

This Unit is quiet in operation. There is no distracting noise to bother occupants of the building in which it is installed.

### Heating Element

● The heating element of the Sunbeam Forced Air Furnace combines the two desirable features of highly efficient operation and long life.

A heavy cast iron burner housing entirely surrounds the combustion chamber where the temperature is highest, thus protecting the heating element from damage.

The gases rise vertically through the round central section from the top of which they are discharged into the outer radiating section through three large rectangular collars. Vertical baffles in the

radiator force all of the gases to pass uniformly over the heating surface. The products of combustion are thoroughly utilized and fuel economy assured. This Unit is provided with a steel inner lining or radiation shield which keeps the air stream in close contact with the heating element and prevents radiated heat from reaching the outer cabinet.

### BURNER

● With the advanced type of burner used in this furnace, the gas is burned in small quantities in several individual burner heads. Each individual burner head is complete and independent, has its own separate mixer and spud, draws its individual supply of gas and air, and mixes the proper combination for maximum flame temperature and greatest fuel economy. Operates on artificial, natural, butane, propane or mixed gases.

### AIR FILTERS

● The air filters with which this unit is equipped, have high cleaning efficiency and long life. They have an unusual capacity for holding lint, soot, dust, dirt, bacteria, pollen and other foreign matter. The bacteria extracting feature of these filters is an effective source of relief for those suffering from respiratory illnesses.



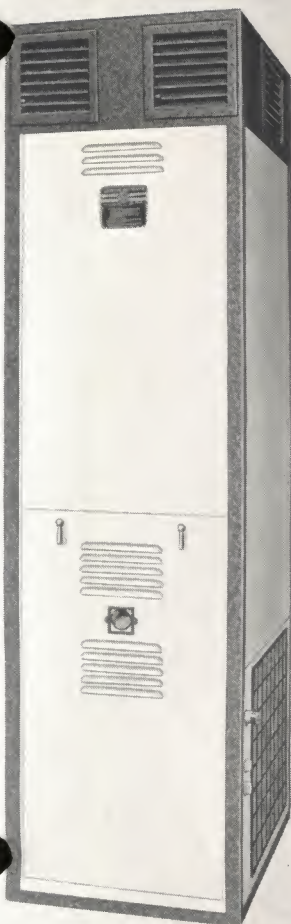
View of heating element showing heavy steel combustion chamber and radiator. Products of combustion pass from the top of the combustion chamber to the radiator through collars shown above. Long fire travel assures economical fuel consumption.

### BLOWER AND MOTOR

● Blower and Motor are specially designed for use with furnaces. The blower is a Centrifugal, forward curved, multi-blade pressure type, rigidly constructed. Rotor shaft bearings are insulated from housing by oil-resisting rubber mountings and quiet, self-aligning durable pillow blocks.

This blower has a two speed pulley which, in addition to providing a proper speed for winter operation, can be adjusted to give approximately 25 per cent increased air delivery for summer ventilation.

Motors are designed for long service and silent operation. They do not cause radio interference. Rotor shaft and motor require lubrication approximately once a year in many installations.



Sunbeam Series TL Forced Air Gas Furnace. This Series has a special top equipped with adjustable louvers through which warmed, filtered air is delivered directly into the room.



# SUNBEAM Forced Air GAS FURNACE

## CONTROLS

**UNIFORM TEMPERATURE**, economical and safe operation are assured by the use of the controls with which the Forced Air Furnace is equipped.

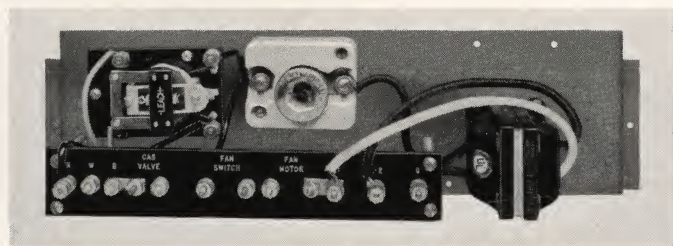
**SAFETY CONTROL** — This instrument automatically shuts off gas supply to the main burner in case pilot flame is accidentally extinguished or gas service shut off temporarily.

**COMBINATION MODULATING AND LIMIT CONTROL** — Maintains air delivery at uniform temperature. When heat is required in all rooms, the fuel supply is at maximum. When some of the registers are closed, the gas supply is automatically decreased in proportion. Thus, the gas flame is constantly adjusted to actual heat requirements — auto-

matically saving fuel, maintaining a safe, uniform air temperature at all times and positively preventing over-heating.

**THERMOSTAT CONTROL** — for controlling both winter heating and summer cooling. Even room temperature throughout all outside temperature variations is maintained by means of a room thermostat. When temperature drops below the desired temperature, 70° for example, thermostat automatically turns on the gas burners.

**BLOWER CONTROL** — permits blower to operate only when furnace is heated to proper temperature. This prevents delivery of cold air when heat is required.



## ELECTRICAL CONTROL PANEL

● At the left is illustrated the electrical control panel with which the Sunbeam Forced Air Furnace is equipped. This assembly, which is located inside the front access door and below the gas manifold, includes transformer, fusetrone, binding posts and relay completely installed and wired. Low voltage wiring — room thermostat and wall switch are on 24-volt circuit — simplifies wiring. No conduit is required.

### †BLOWER — MOTOR C. F. M. AND R. P. M. SERIES T AND SERIES TL

FURNACE NO.	BLOWER WHEEL		Pitch Diameter of Pulleys		BLOWER R.P.M.	FREE AIR no S.P.*		1/8" S.P. In Duct System		1/4" S.P. In Duct System	
	Dia.	Width	Motor	Blower		C.F.M.	BHP	C.F.M.	BHP	C.F.M.	BHP
75-T&TL	10"	9"	3 1/4 3 5/8	10 9 5/8	560 650	862 1000	0.138 0.155	673 842	0.126 0.146	403 647	0.110 0.134
100-T&TL	12"	9"	2 5/8 3	10 9 5/8	453 538	1115 1325	0.1640 0.209	777 1097	0.1433 0.199	414 811	0.1211 0.168
125-T&TL	12"	15"	2 5/8 3	10 9 5/8	453 538	1453 1725	0.1867 0.223	1097 1430	0.1680 0.205	541 1055	0.1386 0.183
135-T&TL	12"	15"	2 5/8 3	10 9 5/8	453 538	1453 1725	0.1867 0.223	1097 1430	0.1680 0.205	541 1055	0.1386 0.183
150-T&TL	10"	9"	3 1/4 3 5/8	10 9 5/8	560 650	1724 2000	0.200 0.226	1346 1684	0.176 0.208	806 1294	0.144 0.184
200-T&TL	12"	9"	2 5/8 3	10 9 5/8	453 538	2230 2650	0.2419 0.323	1554 2194	0.2005 0.303	828 1622	0.1561 0.241

†First line of specifications for each size applies to low speed blower operation; second line to high speed operation.

\*Cubic feet of air delivery per minute at the top of the Series T unit without a duct system, or the amount delivered through the louvers of a Series TL unit.

†Equipped with 2 Blowers of wheel diameter listed.

**NOTE:** Always check static pressure and r.p.m. to make sure that the motor is large enough or that the static pressure or c.f.m. has not been incorrectly estimated. This is very important in protecting the motor against overload.

Series T units are not recommended for installations where resistance exceeds 1/4" S.P.

## TABLE OF SIZES AND CAPACITIES

Furnace Number	Ratings B.T.U. Per Hr. (Note 1)		C.F.M. Air Delivery at Bonnet	BLOWER WHEEL		DIMENSIONS (Inches)				Air Filters (No.) Size	Gas Conn. (Dia. Ins.)	Min. Req. Flue Area (Sq. in.)	Motor Size H.P.
	Input	Output		Dia.	Width	Furnace Overall W. x D.	Furnace Height (Note 2)	Height of Vent Conn. (Note 2)	Warm Air Disch.				
75-T&TL	75,000	56,250	1000	10"	9"	22 x27	62	76½	18x18	(2) 16x20	¾	12	⅙
100-T&TL	100,000	75,000	1325	12"	9"	23 x28	72	86½	18x18	(2) 20x20	¾	20	⅙
125-T&TL	125,000	93,750	1725	12"	15"	25½x32	79	92½	20x20	(2) 20x20	1	20	⅙
135-T&TL	135,000	101,250	1725	12"	15"	25½x32	79	95½	20x20	(2) 20x20	1	28	⅙
150-T&TL	150,000	112,500	2000	10"	9"	43 x27	62	76½	39x18	(3) 16x20	1	28	⅙
200-T&TL	200,000	150,000	2650	12"	9"	45 x28	72	86½	40x18	(3) 20x20	1	40	⅙

†Equipped with 2 Blowers of wheel diameter listed.

**NOTE 1.** Ratings are established by American Gas Association Testing Laboratories.

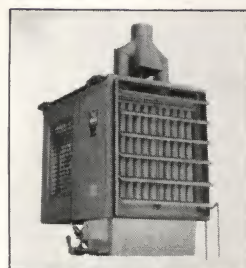
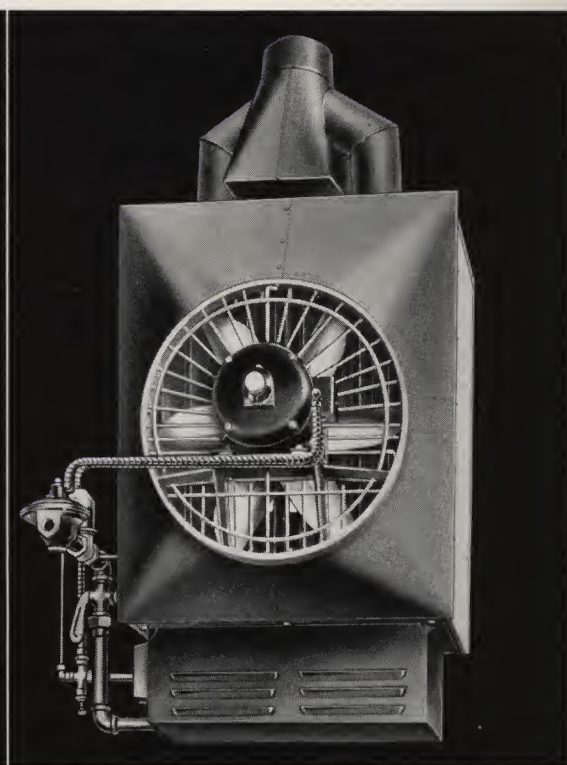
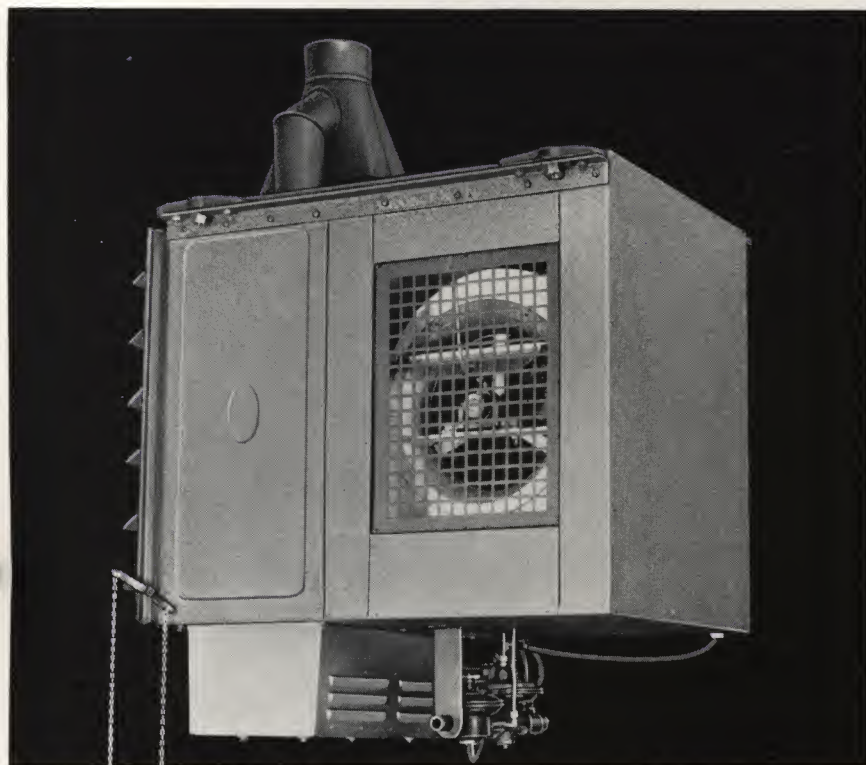
**NOTE 2.** When adjustable Top Louvers are used add 9 1/2" to height.



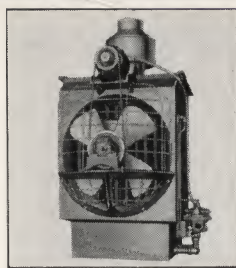


# SUNBEAM

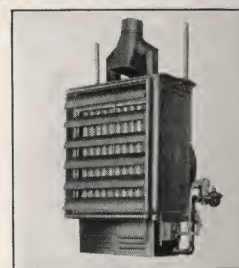
## OVERHEAD HEATING UNITS



SUNBEAM Series C. B. overhead heater. Recommended for offices and other buildings requiring quiet operation.



SUNBEAM Series C.F. Overhead Heater, front view at right, for use in buildings where absolute quietness is not essential. Above is illustrated the rear view of No. 75 and No. 105 in which fan is connected directly to motor. At left is shown rear view of belt-driven No. 155 and No. 200.



THE Sunbeam overhead units are complete and compact gas fired heaters, durably constructed and attractively finished in green art metal heat resisting enamel. They are designed for installation on walls, ceilings, rafters or truss work of commercial and industrial establishments and other buildings. They require no floor space, yet are in a position to operate dependably and efficiently.

Partially cooled air is drawn into the unit by a propeller fan (Series C.F.) or centrifugal blower (Series C.B.), passed through the heating element and out the face of the unit through adjustable louvers. This process is frequently repeated and results in a constant circulation and even distribution of warm air.

The direction in which the warm air flows from the unit is

easily regulated by means of chains attached to the adjustable louvers. By changing the position of the louvers the air can be discharged at any desired angle; to the floor, from which it moves in all directions, where it mixes with the cooler air and raises the temperature of the entire space.

See reverse side of this circular for construction features, sizes and capacities. Your Sunbeam dealer will be glad to give you further details.

### THE FOX FURNACE COMPANY

A DIVISION OF **AMERICAN** & **STANDARD**  
RADIATOR & SANITARY CORPORATION

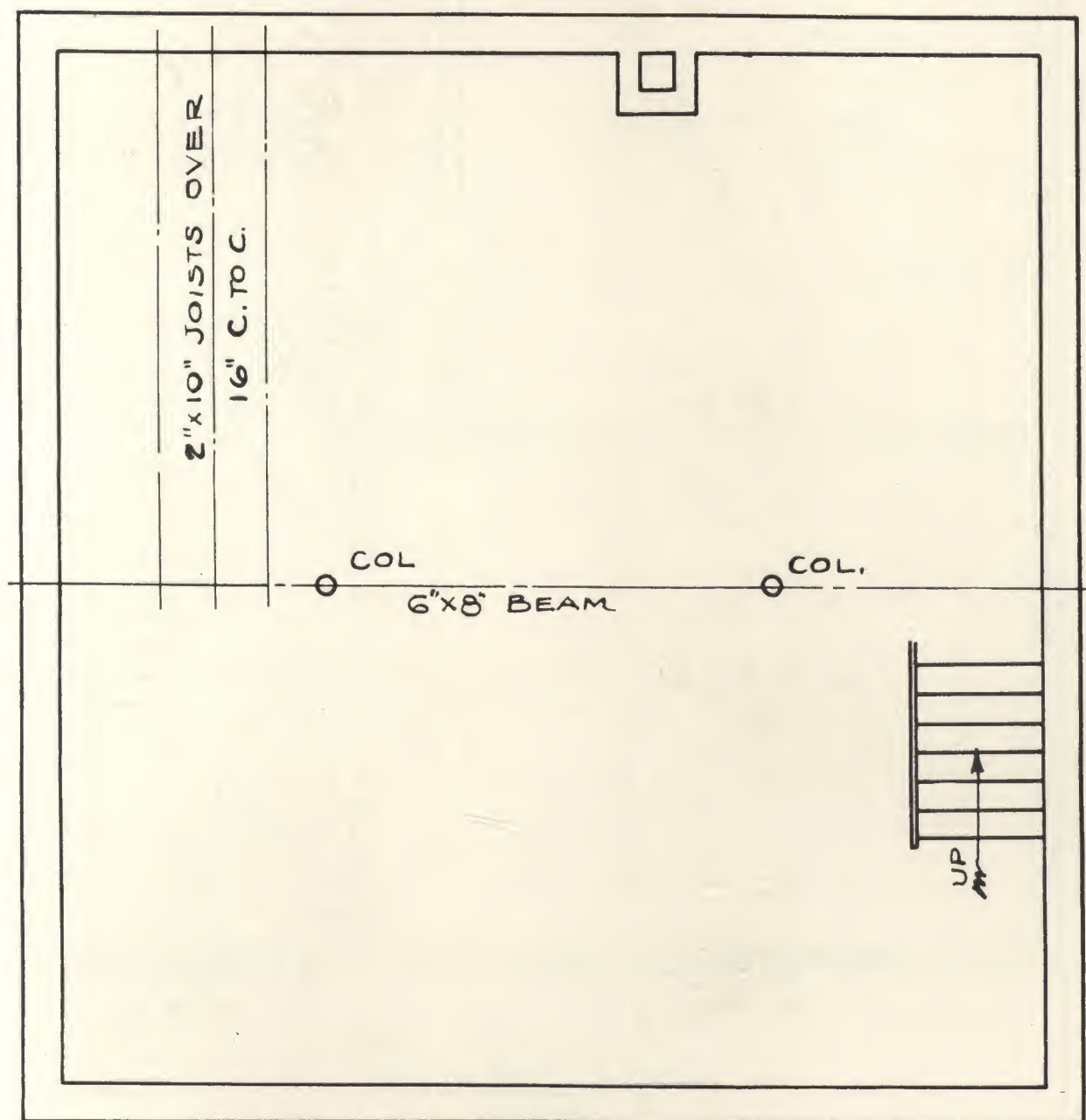
1123 HARRISON STREET, SAN FRANCISCO, CALIFORNIA







# TYPICAL RESIDENCE FOR GRAVITY FURNACE INSTALLATION



**BASEMENT PLAN**

7'0" to Bottom of Joists  
Joists rest on Beam

**No. 1**

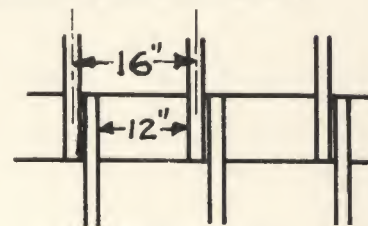


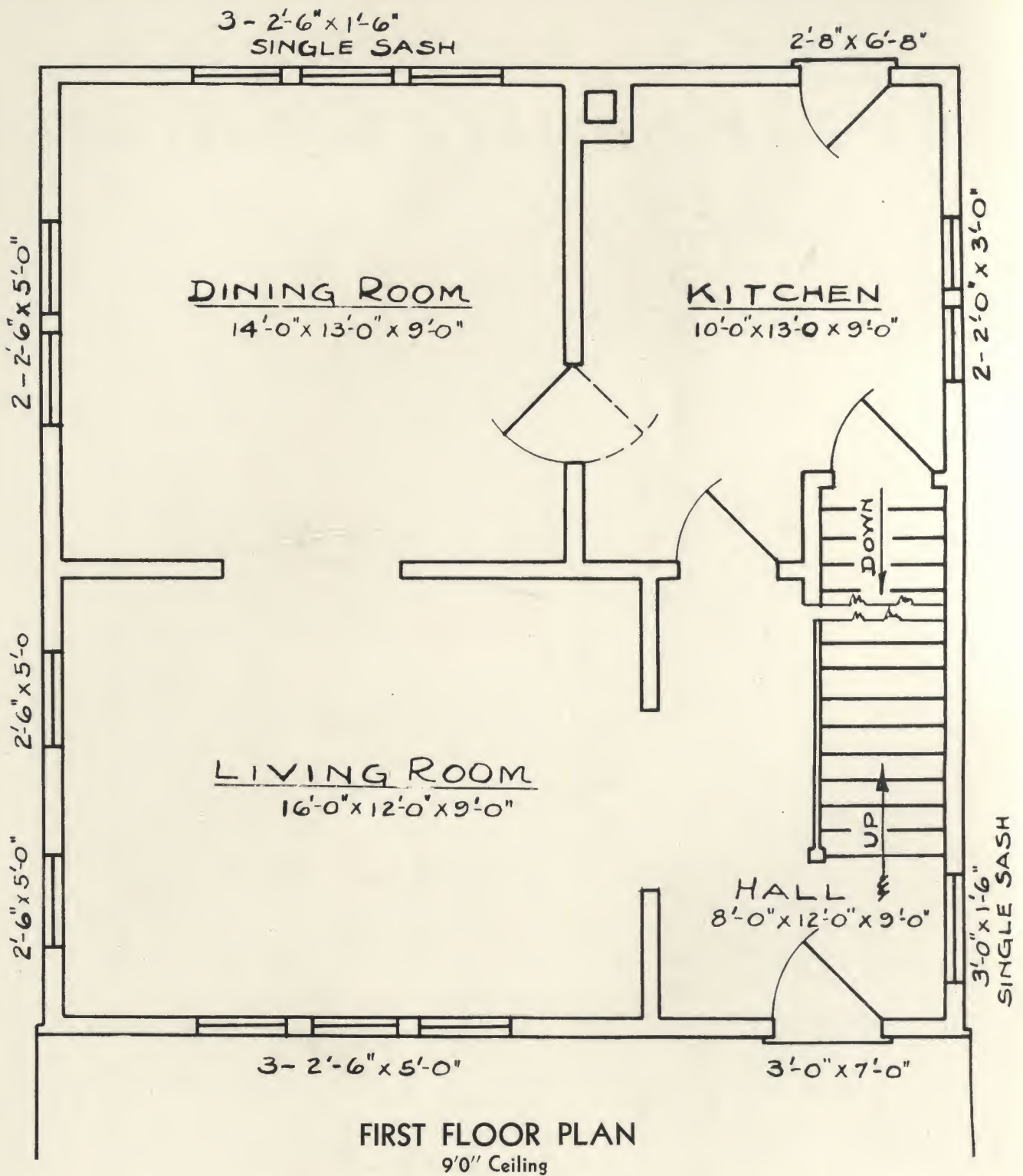
Diagram of Joists

THE FOX FURNACE COMPANY



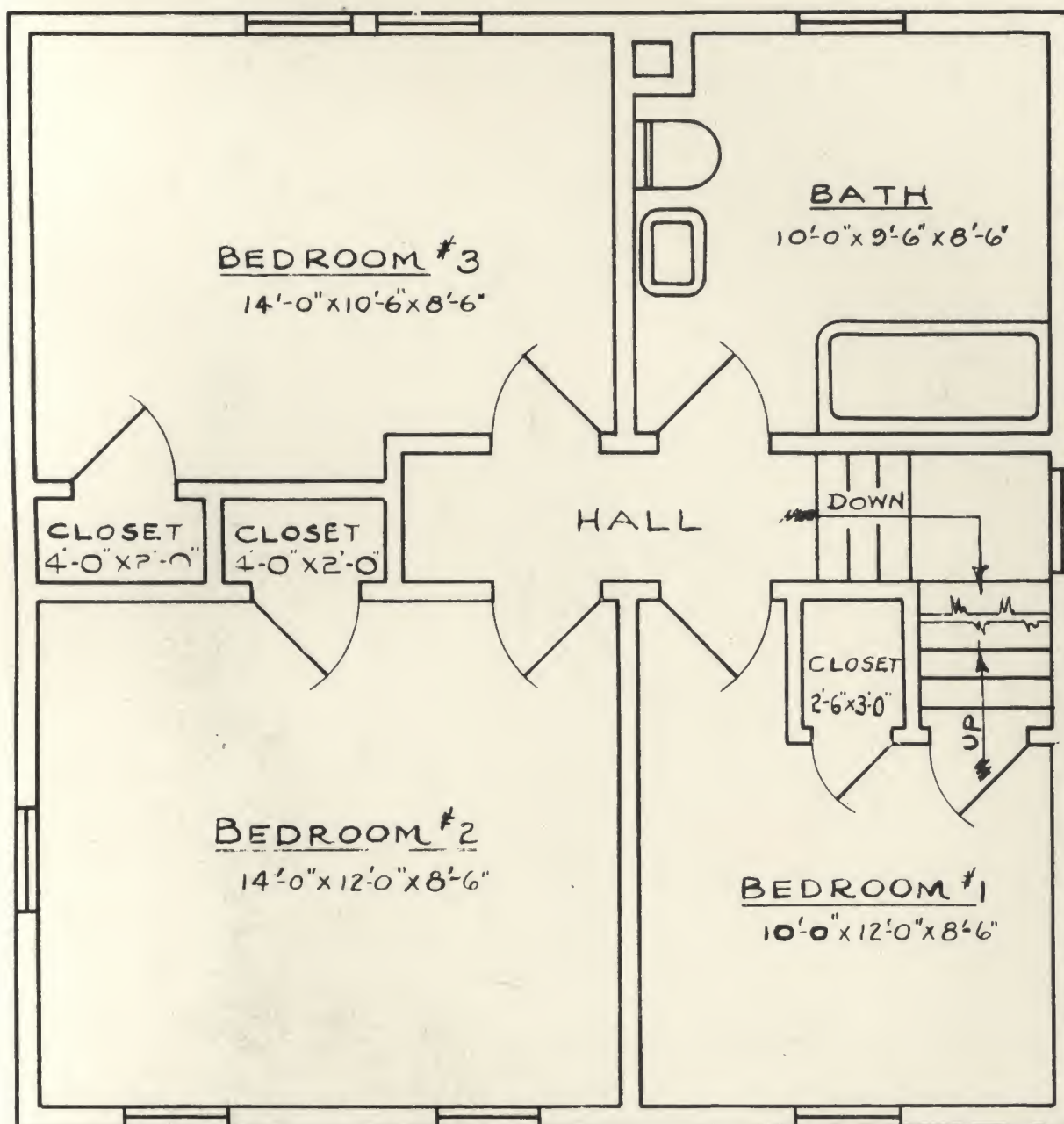
ELYRIA, OHIO





**SUNBEAM**  
WARM-AIR HEATING  
TRADE MARK





All windows 2'6" x 4'6"

## SECOND FLOOR PLAN

Scale  $\frac{1}{4}$ " to the foot.

8'6" Ceiling

### CONSTRUCTION

Standard frame — siding, paper, sheathing,  
studding, lath and plaster.

Ceiling, lath and plaster — floor above







# How to Determine Size of Furnace, Pipe, Fittings, Registers, According to Standard Code

## Warm-Air Pipe

### First Floor

Divide square feet of glass by 12.

Divide square feet of net outside wall by 60.\*

Divide square feet of ceiling area, when space above is not floored or heated, by 50.

(Divide square feet of lath and plaster ceiling area, when space above is floored and not heated, by 90)†

Divide cubic contents by 800.

Add together the above and multiply by 9.

Result is the area of basement pipe in square inches.

### Second Floor

Divide square feet of glass by 12.

Divide square feet of net outside wall by 60.\*

Divide square feet of ceiling area, when space above is not floored or heated, by 50.

(Divide square feet of lath and plaster ceiling area, when space above is floored and not heated, by 90)†

Divide cubic contents by 800.

Add together the above and multiply by 6.

Result is the area of basement pipe in square inches.

### Third Floor

Divide square feet of glass by 12.

Divide square feet of net outside wall by 60.\*

Divide square feet of ceiling area, when space above is not floored or heated, by 50.

(Divide square feet of lath and plaster ceiling area, when space above is floored and not heated, by 90)†

Divide cubic contents by 800.

Add together the above and multiply by 5.

Result is the area of basement pipe in square inches.

\*Factor 60 is used for average frame construction. Consult latest edition of Standard Code for factors for other types of construction and insulation.

†Consult latest edition of Standard Code for factors for other types of ceiling construction and insulation.

## Size of Wall Stacks

*First Floor*—Wall stacks should have same area as warm-air pipes entering them.

*Second Floor*—Wall stacks should have 70% of area of warm-air pipes entering them.

*Third Floor*—Wall stacks should have 70% of area of warm-air pipes entering them.

Where one stack is used to convey heat to two rooms, its net area shall be determined by adding together the areas of the two single stacks, which would be required to take care of the heat losses for each room, if single stacks were used.

## Transition Fittings—Registers

Fittings or boots should be equal in area to the stacks which they supply. Registers should have a free area equal to the area of the basement pipe.

## Size of Return-Air Ducts

Area of Return-Air Ducts, throughout their entire length, shall never be less than the combined net area of all warm-air pipes leading from the furnace. This area may be maintained in one or more ducts.

Horizontal, square or oblong return ducts shall have at least 10% greater area than vertical connecting pipes. Where a boot or shoe is connected to the casing at the base, the opening shall not extend higher than the grate level. The width of the shoe shall be of proper measurement to make the area at least equal to that of the round or square pipe to which it is connected.

## Size of Furnace

To determine the size of furnace required for any building, total the areas (expressed in square inches) necessary for heating the building and select that size of furnace having a square inch rating not less than the sum of all the warm-air pipe areas.

## Explanatory Notes

Note 1. In obtaining glass surface use full casement opening. An outside door is figured as glass.

Note 2. To obtain net outside wall multiply height by width and deduct the glass in all windows, and outside doors. For all rooms with unheated spaces immediately above, full ceiling areas shall be taken into account.

Note 3. For rooms having unusual exposure, ordinarily north, northeast and northwest, add 15% to pipe area.

Note 4. Use no warm air pipe less than 8 inches in diameter. If a pipe figures greater than any standard commercial size, then the next larger size shall be used.

Note 5. It is understood in using the above values for determining basement warm-air pipe areas, that these pipes should be run comparatively straight and that they should not be over 12 feet in length. Sharp turns and long pipes should have extra capacity. When warm-air pipes exceed 12 feet in length or have more than two 90 degree turns, the next larger commercial size pipe must be used. When increases are made, corresponding increases in sizes should be made in stacks, fittings and registers, as per Sections 4 to 8.

Note 6. Multiply the volume of the room in cubic feet by the number of air changes given in Table 1 and divide the result by 800.

TABLE 1

Description	No. of air changes per hour
Living rooms with windows one side.....	1
Living rooms with windows two sides.....	1½
Living rooms with windows three sides.....	2
Sleeping rooms.....	1
Entrance halls .....	2

Note 7. (a) All first floor fittings and connections, must maintain a free area equal to the round basement pipe leading to them.

(b) All second and third floor stacks must not be less than 70% of the calculated basement pipe area required.

(c) Where two or more rooms are heated from the same basement pipe and stack, the area of such basement pipe and stack must equal the combined areas required for said rooms.

Note 8. These formulae are for 70° inside temperature with zero temperature outside. For a temperature below zero add 1¼% per degree to total warm air pipe area; for temperature above zero deduct 1¼% per degree.



# Valuable Installation Suggestions and Suggestions for Placing

1. Do not locate the furnace to accommodate the coal bin and disregard the rest of the installation. The first consideration is placing the furnace where it will give the best results as a warm-air re-circulating system.

2. After the lower casing and boots are attached to the furnace, flush the base ring full of cement and sand to make the base air tight.

3. See that return air boots are fitted tightly.

4. Take the smoke pipe off that side of the furnace nearest the chimney to insure short direct run to chimney without turns.

5. Cement the smoke pipe thimble to the flue. The smoke connection and pipe must be absolutely air tight all the way

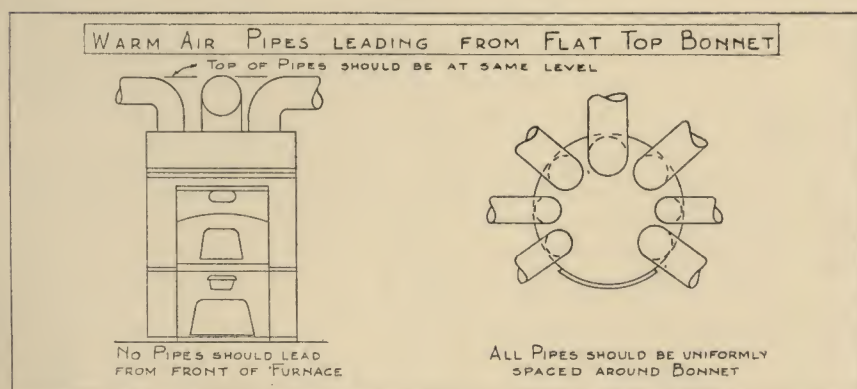
through and into the chimney. Smoke pipe must not extend inside of flue, but should be flush with outer edge of flue lining.

6. Close up with brick and cement all other openings in furnace flue.

7. If the smoke pipes from two furnaces are run to same chimney they must be connected at same level. Do not connect them at opposite sides of the chimney. It is best to use a special receiver and run both pipes into it at the same level. Be sure the chimney is of ample size to accommodate both furnaces.

8. See that chimney is of proper height above roof. It must extend at least three feet above a flat roof or two feet above

## Instructions for Installing



18. When using Flat Top Round Bonnet take Warm-Air Runs off Top of Bonnet as close to the outside edge as possible.

19. Do not take Warm-Air Runs off of Bonnet over front of furnace.

20. Make Warm-Air Runs to all rooms as short as possible. The warm air will circulate more quickly in the room than in long pipes in the basement.

21. Use no Warm-Air Pipes less than eight inches in diameter. Where the volume of warm air required does not conform with the area of any standard commercial size of pipe, always use a size, the area of which is in excess of requirements.

22. Do not make unnecessary right angle turns in the Warm-Air Run between furnace and stackhead.

23. Space Warm-Air Runs equally on either pitch or flat bonnet.

24. Place a Damper in each pipe close to furnace.

25. Do not paper Warm-Air Pipe in shop. Deliver on job

## Instructions for Installing

31. If one Return Air is used, always locate it directly on back of furnace.

If two or more boots are used place them so that the return air from each boot will have its proportion of space within the casing for uniform circulation over the castings. Place a baffle between the two boots. See illustration herein.

32. Place Return Air boots at bottom of lower casing. Bottom of boots to rest on top of base ring. Top of boots to be not higher than top of ash pit.

33. A short direct Return-Air Duct is most effective, but the intake must not be placed so as to create a drafty condition in a room. Each intake should be located in such a manner that the air in the portion of the building which it serves can return to fit it freely with a minimum of effort. When a stairway is used for return air from second floor, an intake should be placed near the base of stairs and in the path of the return air flow. Do not place the intake alongside, or in a recessed portion, of the stairway.

34. Use space between joints, boxed down with pans,

running with the joists where possible. Avoid a bottle neck at any point in the Return-Air System.

Horizontal rectangular return-air ducts or joist spaces shall have at least 10% greater area than vertical connecting pipes.

35. Paper all joints of Return-Air Box, Round Pipe Joints, Stop Ends, and around Boot where it fastens to furnace. The Return-Air System must be air-tight at all points.

36. Never run Return-Air Box over top of furnace.

37. Always caution home owner against placing Screen Wire in Return-Air Ducts or placing anything over Return-Air Faces.

38. Locate Return-Air Faces so that air can enter at both ends of faces as well as one side. It is considered poor practice to place a Return-Air Face in the corner of a room; should it be necessary to do so, the next size larger should be used.

39. Use draw bands on Return-Air Pipes whenever possible.

40. The design and dimensions of Return-Air Boots is very



# Instructions For Gravity Furnace Systems

## and Setting Up Furnaces

the ridges of peak roofs.

9. See that chimney is perfectly clean and smoke tight before connecting smoke pipe.

10. Metal screw all joints of smoke pipe and wire them securely.

11. Bolt all rings to casing, bolt bonnet to ring.

12. Casings must fit rings and base tightly, or dust and dirt will be drawn in and discharged into the rooms, upstairs. Poor joints in return air ducts and casings cut down the efficiency of the return air ducts.

13. Do not paste asbestos paper on bonnet or casing of furnace. If temperature of casing or bonnet gets too high it is an indication that the warm-air or return-air pipes, ducts

or registers, are insufficient in size to permit free circulation of air within the furnace casing.

14. Clean basement up and remove all material when job is completed. Nothing is so aggravating to the housewife or home owner as to find the furnace man's debris strewn all over the place.

15. Always caution purchaser against allowing ashes to accumulate in ash pit.

16. Do a first class job of papering. Very often your installation is judged by the general appearance rather than by engineering excellence.

17. Always instruct purchaser how to operate and care for the heating plant when installed.

## Warm-Air Runs

in Six Foot soldered lengths not papered and installation will present cleaner and more favorable appearance when completed.

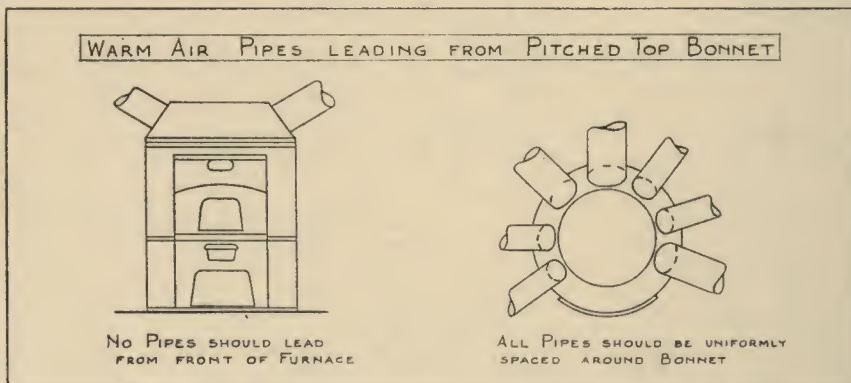
26. Do not put paste on paper with brush. Cut paper to fit pipe, dip edges two inches in paste and apply. The papering cost can be reduced 50% and a much neater job will result. Wet elbow section of paper on both sides by dipping.

27. All Warm-Air Pipes should leave the furnace at the same elevation.

28. If partition where stackhead is used on second floor is offset from first floor partition, use a Crossover approximately 50% greater in area than the stack, using a First Floor Baseboard Head on Crossover.

29. Where warm-air pipe connects to a stack or register head it shall transition with a well designed elbow or boot.

30. On old house work install exposed stacks in closets or bed rooms, when permissible.



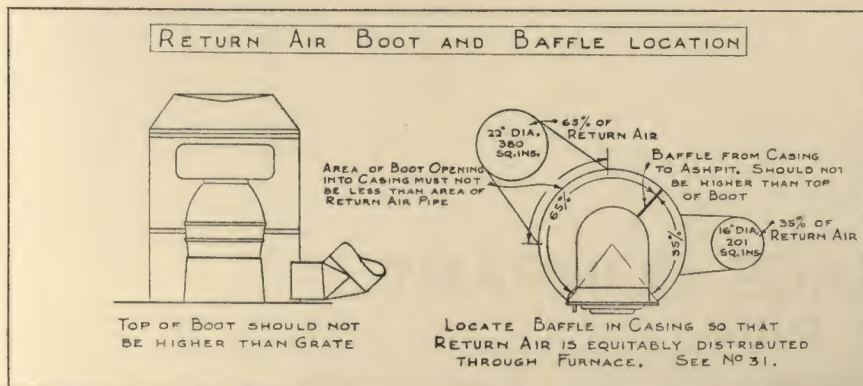
## Return-Air Ducts

important. Avoid the use of Return-Air Boots that do not give full capacity of Return-Air Pipes.

41. Do not permit the home owner to locate the Return-Air Duct Intakes. All due consideration may be given his preference, if there is more than one workable location.

42. In planning Air Ducts remember that Gravity is the only motive power for moving the air through the system. The force of Gravity is perpendicular not horizontal. Friction retards or holds back. Avoid the movement of air, particularly return air through restricted passages on the horizontal. Partial paralysis of the system exists in every system ignoring this fundamental.

An ideal Gravity system needs no mechanical means of circulating the air. Systems loaded down with long horizontal air ducts should have mechanical means of propelling the air.





## Warm-Air Pipe Area and Sunbeam Registers Sizes

Dia. of Pipe	Sq. In. Area	Sunbeam No. 31 Floor Registers Sizes	Sunbeam Baseboard Registers			Sunbeam Wall Registers	
			No. MT. Register Sizes	Stackhead Throat (One Reg.)	Stackhead Throat (Two Reg.)	No. H. M. Register Sizes	Second Floor Stacks
8"	50	8x10	10x8-2 $\frac{1}{4}$ " 12x8-2 $\frac{1}{4}$ "	6 $\frac{1}{8}$ "x10" 6 $\frac{1}{8}$ "x12"	8 $\frac{5}{8}$ "x10" 8 $\frac{5}{8}$ "x12"	10x8 12x8	3 $\frac{1}{2}$ "x10" 3"x12"
9"	63	9x12	12x9-2 $\frac{1}{4}$ "	6 $\frac{1}{8}$ "x12"	8 $\frac{5}{8}$ "x12"	12x9	3 $\frac{1}{2}$ "x12"
10"	78	10x12	12x10-3 $\frac{1}{4}$ "	7 $\frac{1}{8}$ "x12"	10 $\frac{5}{8}$ "x12"	12x10	5 $\frac{1}{2}$ "x12"
12"	113	12x14	13x11-5 $\frac{1}{4}$ " 14x12-5 $\frac{1}{4}$ "	9 $\frac{1}{8}$ "x13" 9 $\frac{1}{8}$ "x14"	14 $\frac{5}{8}$ "x13" 14 $\frac{5}{8}$ "x14"	.....	.....
14"	154	14x16	.....	.....	.....	.....	.....

Maximum warm-air register sizes are recommended; Joist Pan sizes are based on joists spaced 16" on center, and using two or four joist spaces depending on the register arrangements. Cross joist box sizes are given for short boxes; if long boxes are required 10 to 20% more, depending on the length, should be added to the free area of the box.

### Return Air System, Dimensions of Pipes, Registers, Ducts, Etc.

Dia. of Pipe	Sq. Inch Area	Registers Sizes		Joist Pans			Cross Joist Boxes	Boot dimen- sions at casing
		Wood	Metal Sunbeam No. 130	Joist Sizes				
				8"	10"	12"		
16"	201	14x30	10x30	30x2	30x2	30x2	30x8	18x12
18"	254	18x30 or 2-10x30	12x30	30x4	30x2	30x2	30x10	23x12
20"	314	22x30 or 2-12x30	16x30	30x5	30x4	30x2	30x12	27x12
22"	380	16x48 or 2-14x30	18x30 or 2-10x30	30x8 60x4	30x6½ 60x4	30x4½ 60x3	30x14 or 60x7	32x12
24"	452	26x36 or 2-16x30	22x30 or 2-12x30	30x11 60x6	30x9 60x5	30x7½ 60x4	30x17 or 60x9	38x12
26"	531	22x48 or 2-18x30	26x30 or 2-14x30	30x14 60x7	30x12½ 60x7	30x10½ 60x6	30x19 or 60x10	40x13½
28"	616	26x48 or equivalent	2-16x30 or equivalent	60x9	60x8	60x7	48x14 or 60x12	46x13½
30"	707	30x48 or equivalent	2-18x30 or equivalent	60x11	60x10	60x9	48x17 or 60x13	53x13½

### Capacities of Sunbeam Warm Air Furnaces

Cast Iron, 1000 Series			Steel, 8000 Series			Steel, 500 Series		
No.	Ratings in Square Inches	Btu. Cap. per Hr. at Register	No.	Ratings in Square Inches	Btu. Cap. per Hr. at Register	No.	Ratings in Square Inches	Btu. Cap. per Hr. at Register
1018	336	46,400	8022	537	73,032	520	393	53,400
1040	405	55,900	8024	612	83,232	522	461	62,700
1044	492	67,900	8027	804	109,344	524	538	73,200
1048	578	79,800	8030	947	128,792	527	683	92,900
1052	689	95,100	8034	1151	156,536			
1056	794	109,600	8034J	1229	167,144			
30C	907	125,200						

# THE FOX FURNACE COMPANY

## ELYRIA, OHIO

A Division of

## AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

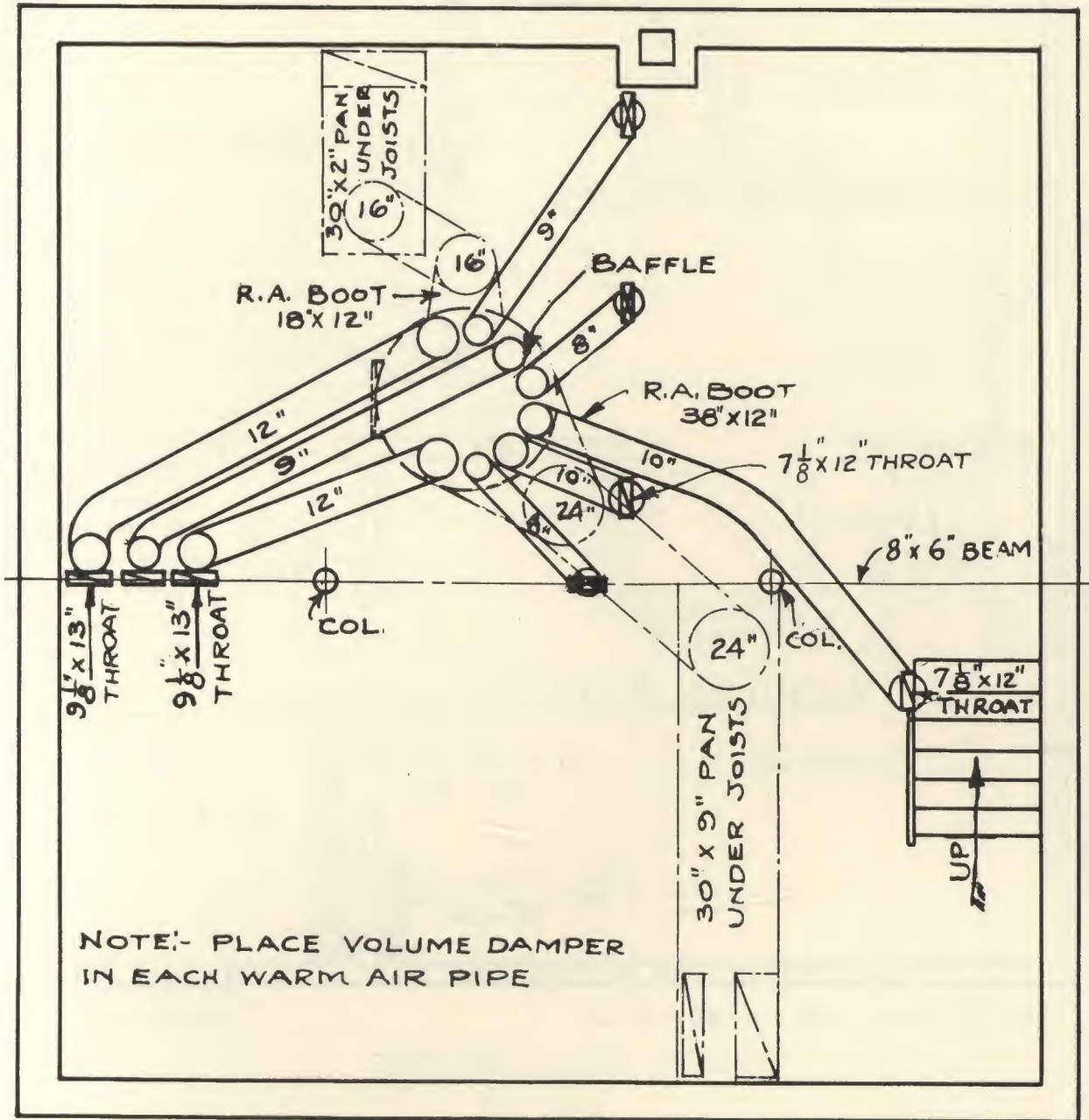
Diam.	Circumference of Circles	Areas of Circles
2	6.2832	3.141
$\frac{1}{4}$	7.0686	3.976
$\frac{1}{2}$	7.8540	4.908
$\frac{3}{4}$	8.6394	5.939
3	9.4248	7.068
$\frac{1}{4}$	10.210	8.295
$\frac{1}{2}$	10.996	9.621
$\frac{3}{4}$	11.781	11.044
4	12.566	12.566
$\frac{1}{2}$	14.137	15.904
5	15.708	19.635
$\frac{1}{2}$	17.279	23.758
6	18.850	28.274
$\frac{1}{2}$	20.420	33.183
7	21.991	38.484
$\frac{1}{2}$	23.562	44.178
8	25.133	50.265
$\frac{1}{2}$	26.704	56.745
9	28.274	63.617
$\frac{1}{2}$	29.845	70.882
10	31.416	78.54
$\frac{1}{2}$	32.987	86.59
11	34.558	95.03
$\frac{1}{2}$	36.128	103.86
12	37.699	113.09
$\frac{1}{2}$	39.270	122.71
13	40.841	132.73
$\frac{1}{2}$	42.412	143.13
14	43.982	153.93
$\frac{1}{2}$	45.553	165.13
15	47.124	176.71
$\frac{1}{2}$	48.695	188.69
16	50.265	201.06
$\frac{1}{2}$	51.836	213.82
17	53.407	226.98
$\frac{1}{2}$	54.978	240.52
18	56.549	254.46
$\frac{1}{2}$	58.119	268.80
19	59.690	283.52
$\frac{1}{2}$	61.261	298.64
20	62.832	314.16
$\frac{1}{2}$	64.403	330.06
21	65.973	346.36
$\frac{1}{2}$	67.544	363.05
22	69.115	380.13
$\frac{1}{2}$	70.686	397.60
23	72.257	415.47
$\frac{1}{2}$	73.827	433.73
24	75.398	452.39
$\frac{1}{2}$	76.969	471.43
25	78.540	490.87
26	81.681	530.93
27	84.823	572.55
28	87.965	615.75
29	91.106	660.52
30	94.248	706.86
31	97.389	754.76
32	100.531	804.24
33	103.673	855.30
34	106.814	907.92
35	109.956	962.11
36	113.097	1017.8
37	116.239	1075.2
38	119.381	1134.1
39	122.522	1194.5
40	125.664	1256.6
41	128.805	1320.2
42	131.947	1385.4
43	135.088	1452.2
44	138.230	1520.5
45	141.372	1590.4
46	144.513	1661.9
47	147.655	1734.9
48	150.796	1809.5
49	153.938	1885.7
50	157.080	1963.5
51	160.221	2042.8
52	163.363	2123.7
53	166.504	2206.1
54	169.646	2290.2
55	172.788	2375.8
56	175.929	2463.0
57	179.071	2551.7
58	181.212	2642.0
59	185.354	2733.9
60	188.496	2827.4
61	191.637	2922.4
62	194.779	3019.0
63	197.920	3117.2
64	201.062	3216.9

To find the circumference of a circle when diameter is given, multiply the given diameter by 3.1416.

To find the area of a circle when diameter is given, multiply the square of the diameter by .7854.



# GRAVITY FURNACE INSTALLATION FOR TYPICAL RESIDENCE



## BASEMENT PLAN

7'0" to bottom of Joists  
Joists rest on Beam

No. 2

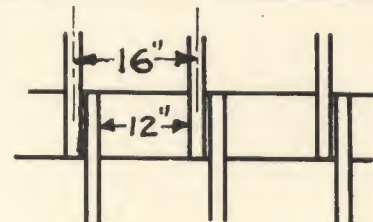


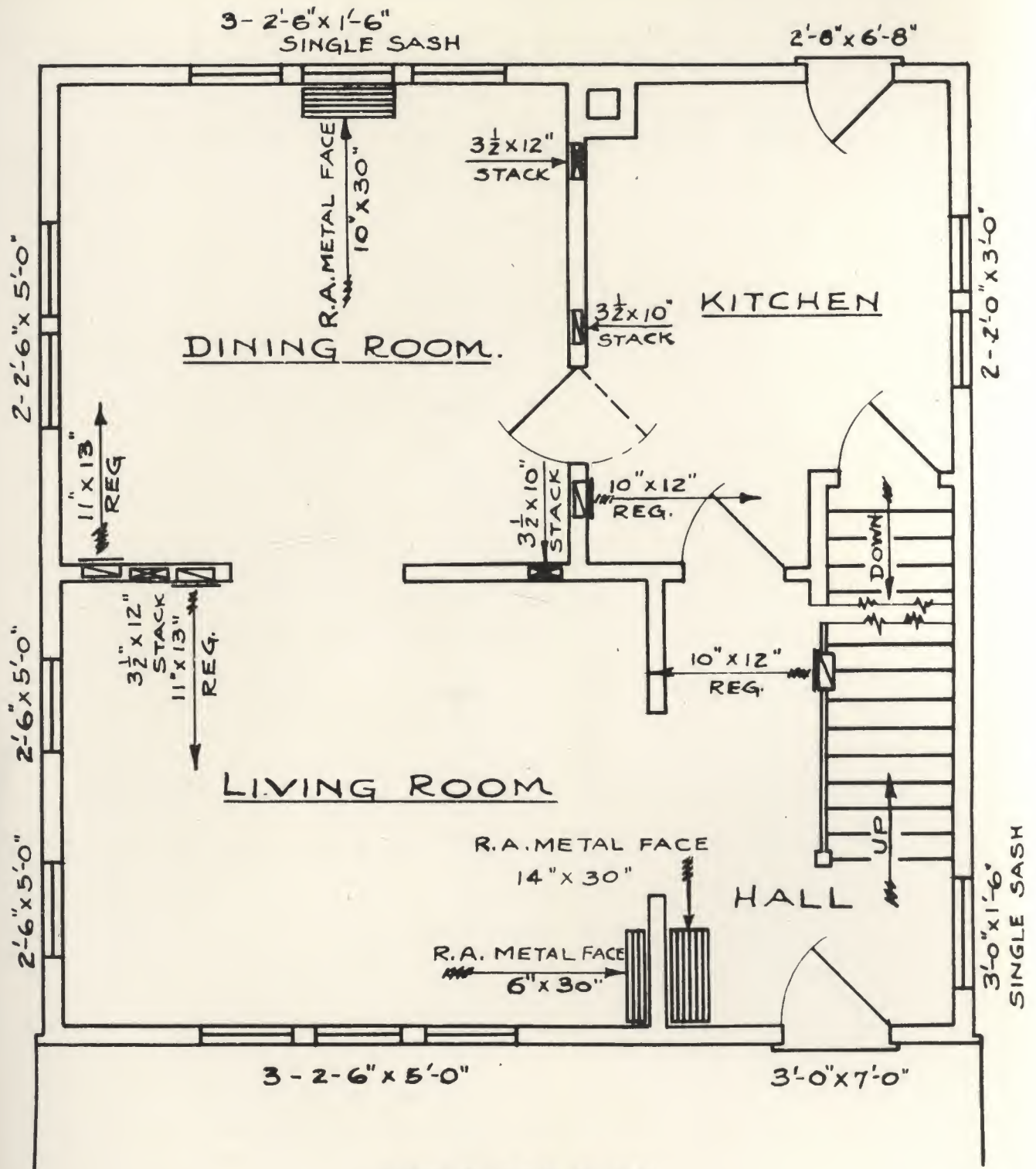
Diagram of Joists

THE FOX FURNACE COMPANY



ELYRIA, OHIO



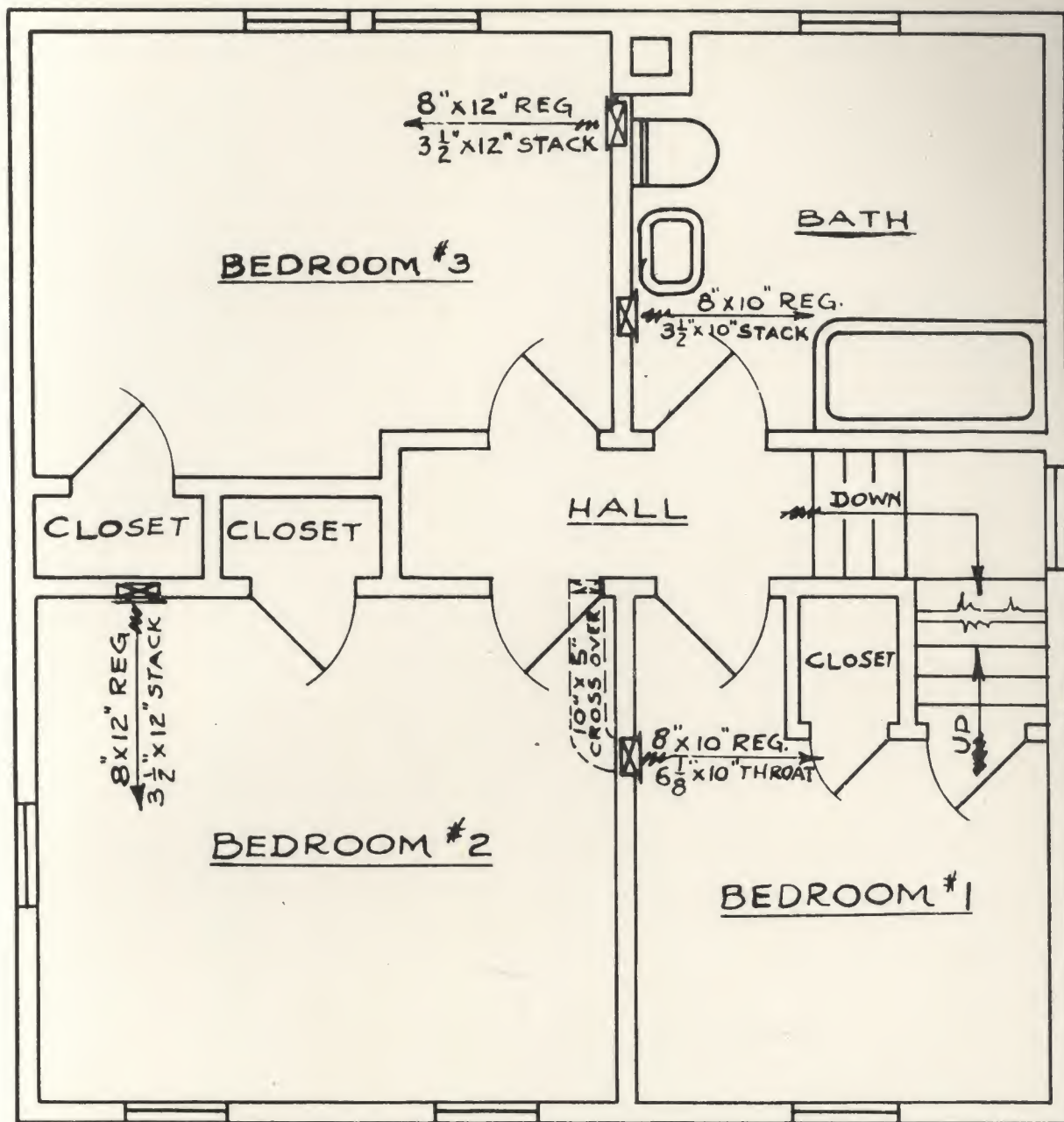


FIRST FLOOR PLAN

9'0" Ceiling

**SUN**  
WARM





All windows 2'6" x 4'6"

## SECOND FLOOR PLAN

8'6" Ceiling

Scale  $\frac{1}{4}"$  to the foot.

**TEAM**  
HEATING



# HEATING REQUIREMENTS

FIRST FLOOR											
	HALL		LIVING ROOM		DINING ROOM		KITCHEN		HALL		BATH
	EXPOSURE SQ. FT.	FACTOR RESULT	EXPOSURE SQ. FT.	FACTOR RESULT	EXPOSURE SQ. FT.	FACTOR RESULT	EXPOSURE SQ. FT.	FACTOR RESULT	EXPOSURE SQ. FT.	FACTOR RESULT	
TOTAL WALL EXPOSURE NOTES 1+2	180		252		245		185		26		153
GLASS	26	.75 / 20	63	.75 / 47	36	.75 / 27	30	.75 / 23	11	.5 / 6	11
NET WALL	154	.15 / 23	189	.15 / 28	209	.15 / 31	155	.15 / 21	15	.1 / 2	142
CEILING (NO FLOOR ABOVE)	56	.18		.18		.18		.18		.12	
CEILING (FLOOR ABOVE)	90	.1		.1		.1		.1	57	.07 / 4	95
FLOOR	42	.11		.11		.11		.11		.15	
DBL. FLOOR ON 10533											
CUBIC CONTENTS TABLE #1	864	.023 / 20	1728	.017 / 29	1670	.017 / 28	1170	.017 / 20	395	.008 / 3	808
SUB-TOTAL		63		104		86		64	15		36
SAFETY FACTOR NOTE #3		—		—		13		10	—		5
TOTAL SQ. INS. HEAT REQ'D		63		104		99		74	15		41
HEAT PIPE SPECIFIED NOTES 4+5	10 INCH		12 INCH		12 INCH		10 INCH		HEATED FROM LOWER FLOOR		
B.T.U. FIRST FLOOR - 37740 } TOTAL B.T.U. 74146											
B.T.U. SECOND FLOOR - 36406 } TOTAL B.T.U. 74146											
W.A. PIPE FIRST FLOOR - 340 } TOTAL 558 SQ. IN. REQUIRED.											
W.A. PIPE SECOND FLOOR - 218 }											
W.A. PIPE SPECIFIED 608 SQ. INS.											
FURNACE SIZE { SOFT COAL #6024 CAPACITY 582 " HARD COAL #6027 CAPACITY 578 " }											
R.A. SPECIFIED 653 SQ. INS.											

Table No. 1 (First Floor) Living rooms with windows on one (1) side use factor .011 Table No. 1 (Second Floor) Living rooms with windows on one (1) side use factor .008  
 Living rooms with windows on two (2) sides use factor .017 Living rooms with windows on two (2) sides use factor .011  
 Living rooms with windows on three (3) sides use factor .023 Living rooms with windows on three (3) sides use factor .015

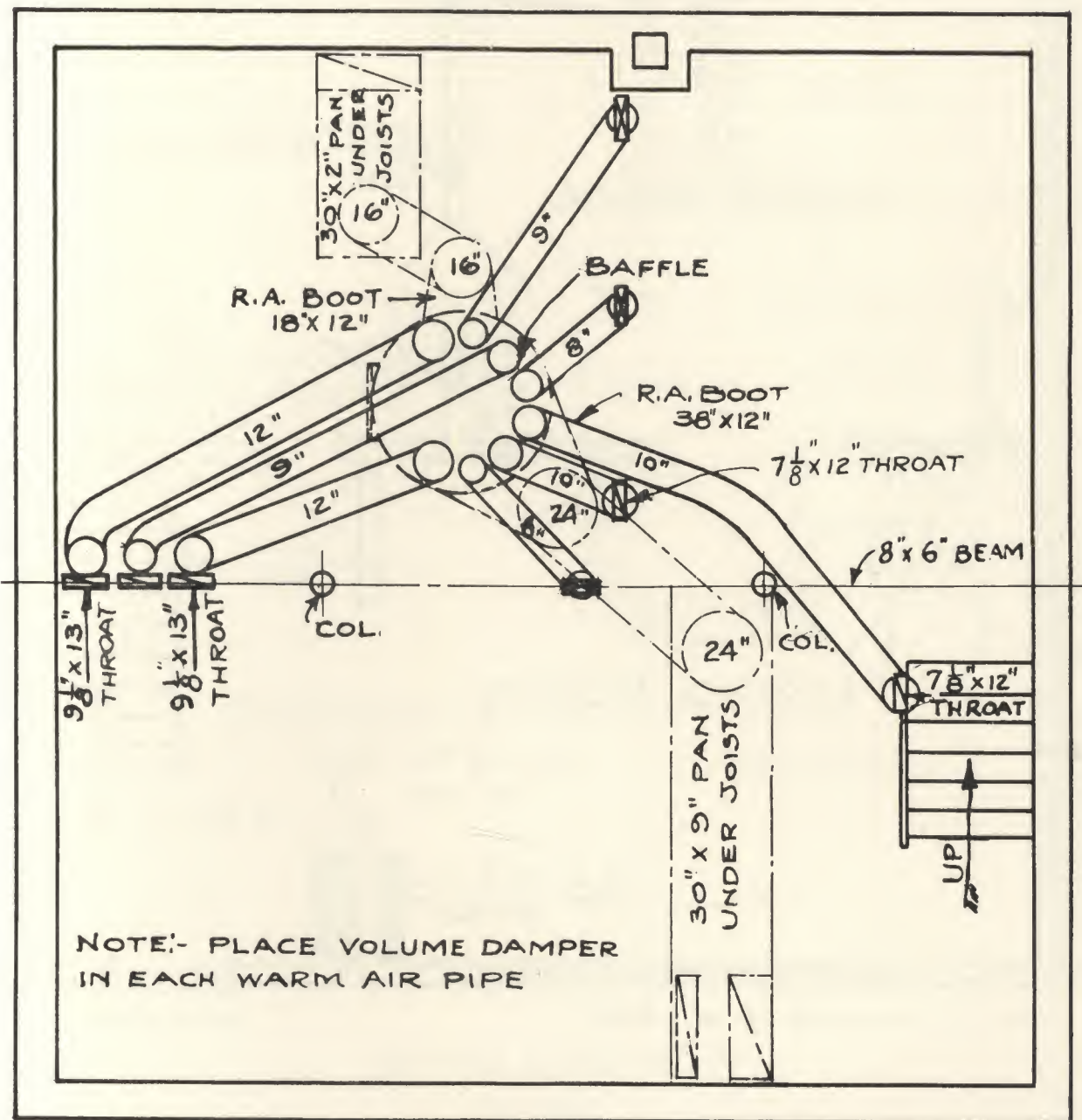
Sleeping rooms use factor .011 Sleeping rooms use factor .008  
 Entrance halls use factor .023 Entrance halls use factor .015

## CONSTRUCTION

Standard frame (siding, paper, sheathing, studding, lath and plaster) — Ceiling, lath and plaster — floor above.



# GRAVITY FURNACE INSTALLATION FOR TYPICAL RESIDENCE



## BASEMENT PLAN

7'0" to bottom of Joists  
Joists rest on Beam

No. 2

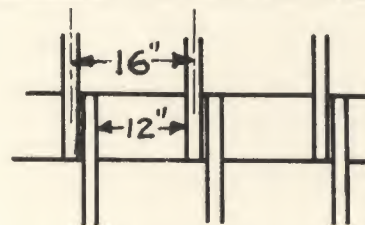


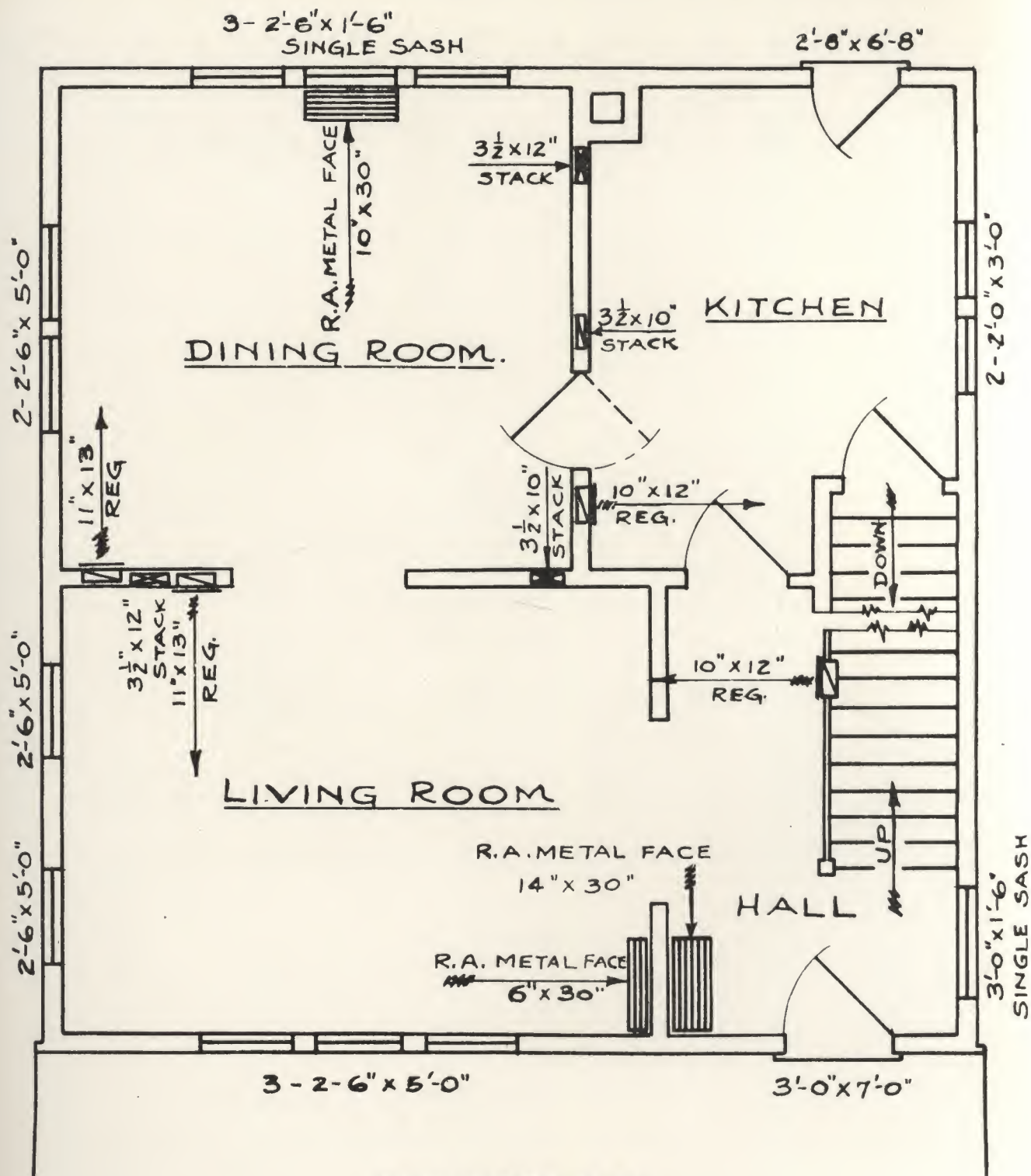
Diagram of Joists

THE FOX FURNACE COMPANY



ELYRIA, OHIO



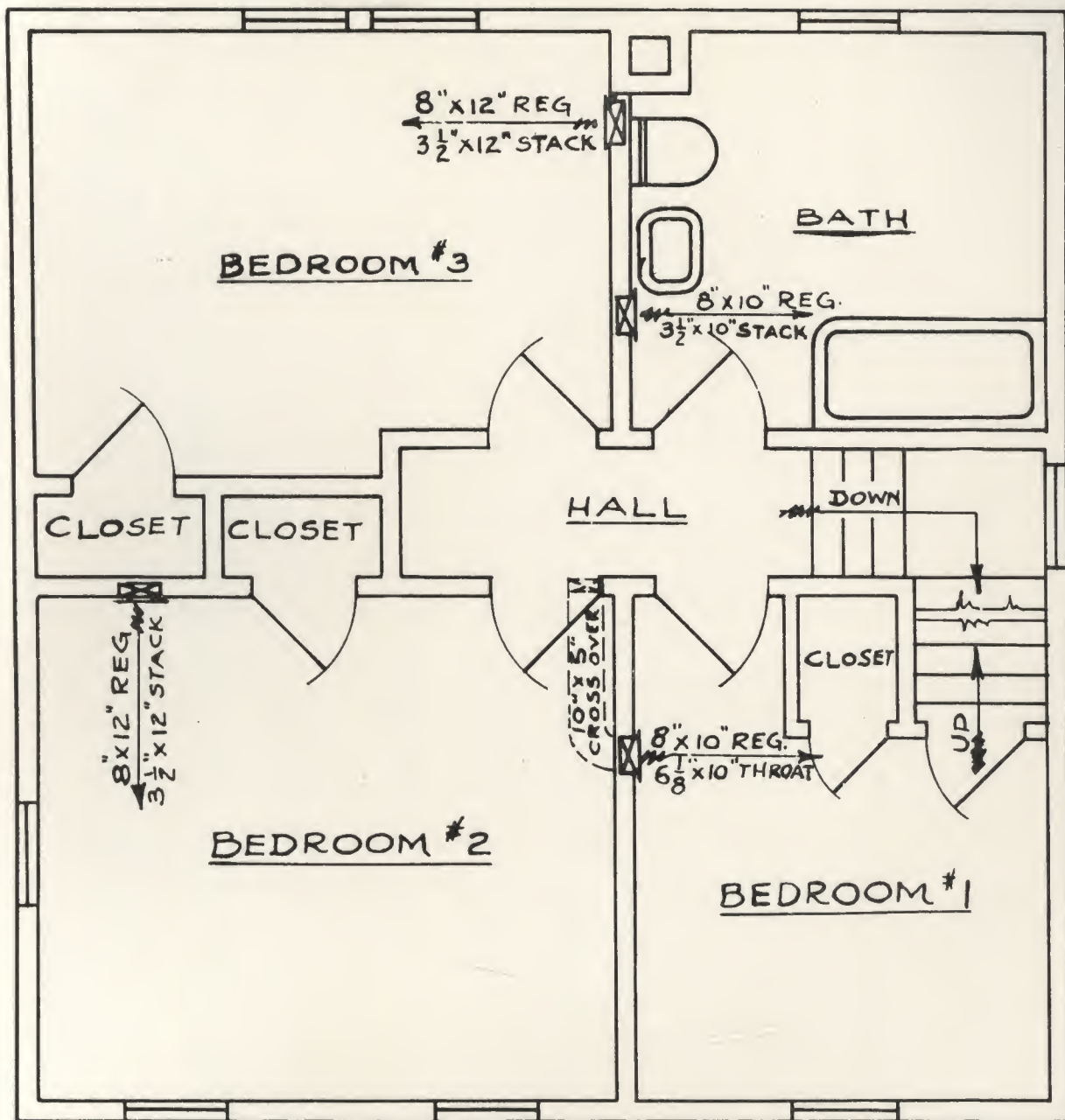


FIRST FLOOR PLAN

9'0" Ceiling

**SUN**  
WARM





All windows  $2'6" \times 4'6"$

## SECOND FLOOR PLAN

$8'6"$  Ceiling

Scale  $\frac{1}{4}"$  to the foot.



# HEATING REQUIREMENTS

FIRST FLOOR											
	HALL	LIVING ROOM	DINING ROOM	KITCHEN	HALL	BEDROOM #1	BEDROOM #2	BEDROOM #3	BATH		
TOTAL WALL EXPOSURE NOTES 1+2	EXPOSURE SQ. FT.	EXPOSURE SQ. FT.	EXPOSURE SQ. FT.	EXPOSURE SQ. FT.	EXPOSURE SQ. FT.	EXPOSURE SQ. FT.	EXPOSURE SQ. FT.	EXPOSURE SQ. FT.	EXPOSURE SQ. FT.	EXPOSURE SQ. FT.	EXPOSURE SQ. FT.
GLASS 12	26	63	36	30	11	11	34	23	11	11	6
NET WALL 60	154	189	209	155	15	176	204	202	142	14	14
CEILING 6 50 (NO FLOOR ABOVE)	.18	.18	.18	.18	.12	.12	.12	.12	.12	.12	.12
CEILING 90 (FLOOR ABOVE)	.1	.1	.1	.1	.07	.07	.07	.07	.07	.07	.07
FLOOR 42 DBL. FLOOR ON 20513	.11	.11	.11	.11	.15	.15	.15	.15	.15	.15	.15
CUBIC CONTENTS TABLE #1	864	1728	1670	1170	395	918	1496	1318	808	9	9
SUB-TOTAL	63	104	86	64	15	39	61	54	36	36	36
SAFETY FACTOR NOTE #3	-	-	13	10	-	-	-	8	5	5	5
TOTAL SQ. INS. HEAT REQUIREMENT	63	104	99	74	15	39	61	62	41	41	41
HEAT PIPE SPECIFIED NOTES 4+5	10 INCH	12 INCH	12 INCH	10 INCH	HEATED FROM LOWER FLOOR	8 INCH	9 INCH	9 INCH	8 INCH	8 INCH	8 INCH
B.T.U. FIRST FLOOR- 37740 } TOTAL B.T.U. 74146				W.A. PIPE FIRST FLOOR- 340 } TOTAL 558 SQ. IN. REQUIRED.							
B.T.U. SECOND FLOOR- 36406 }				W.A. PIPE SECOND FLOOR- 218 }							
W.A. PIPE SPECIFIED 608 SQ. INS.				FURNACE SIZE { SOFT COAL #1048 - CAPACITY 578 SQ. IN. HARD COAL #1048 CAPACITY 578 " "				R.A. SPECIFIED 653 SQ. INS.			

Table No. 1 (First Floor) Living rooms with windows on one (1) side use factor .011 Table No. 1 (Second Floor) Living rooms with windows on one (1) side use factor .008

Living rooms with windows on two (2) sides use factor .017

Living rooms with windows on three (3) sides use factor .023

Sleeping rooms use factor .011

Entrance halls use factor .023

## CONSTRUCTION

Standard frame (siding, paper, sheathing, studding, lath and plaster) — Ceiling, lath and plaster — floor above.

Living rooms with windows on two (2) sides use factor .011

Living rooms with windows on three (3) sides use factor .015

Sleeping rooms use factor .008

Entrance halls use factor .015



Jan. 19, 1938

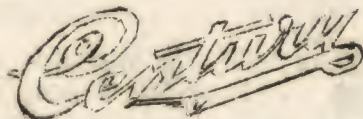
SUNBEAM

AIR CONDITIONING

ENGINEERING SCHOOL

DISCUSSION OF MOTORS

Extract of Talk by CENTURY Electric Company.  
Pertaining to Installation and Service of  
Electric Motors.

The logo for Century Electric Company, featuring the word "Century" in a stylized, cursive script font. The letters are interconnected, with the "C" being particularly large and ornate. The logo is positioned centrally below the main text.



Jan. 19, 1938

INSTALLATION AND SERVICE OF CENTURY MOTORS,  
USED ON "SUNBEAM BLOWERS"

---

The Century Capacitor Start Capacitor Run Motor used on Sunbeam Blowers is built to exacting standards of the best materials available. Each motor is given a complete power test as well as a high voltage insulation test before it is shipped.

The following suggestions are offered as a guide to insure satisfactory service and long life for your motor.

WHEN INSTALLING:

1. Make sure the frequency and voltage of the current supply circuit agree with the marking on the motor nameplate. If in doubt consult the power company.
2. In mounting the motor pulley do not hammer the pulley on to the shaft. The pulley should fit the shaft snugly but should not require driving on the shaft. Driving on a pulley may spring the shaft or damage the cushion end play washers in the motor. If the pulley is too tight look for burrs on the shaft or pulley and dress them down.
3. Make sure the motor and blower pulleys are accurately lined up and that the belt runs true. Misalignment adds unnecessary friction load and may result in rapid wearing of the shaft shoulder.
4. The belt tension should be just enough to prevent slipping. Greater tension adds unnecessary load to the bearings and may noticeably increase the power taken by the motor. When running, the belt should show a slight outward bow as it leaves the motor pulley.
5. Fill the motor oil wells with a good light engine oil of about SAE 10 grade. Add the oil slowly to allow the wool yarn in the oil wells to absorb the oil. The proper amount to fill the wells is shown on the card attached to the motor.
6. Try turning the motor armature and the blower by hand to make sure there is no binding or undue friction.
7. It is suggested that the motor be started several times and run a few minutes without the belt to check starting and direction of rotation.
8. The single pole switch in the automatic control opens only one side of the motor circuit. Be sure this switch opens the live side of the circuit. The live side of the circuit can be determined by connecting one terminal of your test lamp to ground and touching each side of the line with the other terminal of your test lamp. The test lamp lights when you touch the live side of the circuit.
9. WARNING - Operating blower without filters in place and without ducts connected up will overload the motor. If blower is to be operated without filters and ducts close up about  $\frac{3}{4}$  of the discharge opening in the blower housing. This will then approximate normal load conditions.



### LOCATING AND CORRECTING MOTOR TROUBLE

The following outline is intended to help you locate trouble and suggests the remedy.

#### SHOULD THE MOTOR FAIL TO START:

Failure to start can only result from:

1. No voltage at the motor terminals -

- (a) Check with a test lamp or voltmeter across the line at the motor terminals. Generally the trouble will be found in open fuses or switch and control contacts not closing.
- (b) If the motor is equipped with a Fusetron be sure the Fusetron is screwed down tight in the receptacle. Sometimes considerable pressure is needed to firmly seat the Fusetron. Examine the Fusetron - be sure it has not been blown. The Fusetron may be checked with a test lamp or another Fusetron tried in the receptacle.

2. Low voltage - Check with voltmeter across motor terminals. The voltage should not be more than 5% below the nameplate value for the power developed by a motor decreases very rapidly with a decrease in voltage.

Low voltage generally results from overloaded circuits or transformers. If the power supply voltage is low consult the power company. If due to inadequate wiring in the building the only remedy is a new circuit or a transfer of part of the load to another circuit.

Poor contacts in switches, fuses or control may cause low voltage.

3. Binding in the motor or blower - Try turning by hand to make sure they turn freely and that bearings are oiled.

4. Defective motor winding - Such trouble is very unlikely, therefore be sure there is voltage at motor terminals and that the Fusetron is not open. If certain the trouble is in the motor it should be replaced and returned to the works for correction.

An open motor starting winding may be indicated by the motor humming but not starting with the current on.

A defective cut out switch in the motor in which the contacts do not properly close the starting circuit will prevent the motor starting. This can be located by removing the inspection plate on the front end bracket and examining these contact points.



This is frequently due to the cushion end play washers on the shaft having been destroyed or broken. These can readily be replaced with new parts. It is suggested service and installation men carry these in their kits.

A shorted motor winding is indicated by lack of torque, humming, excessive power taken by motor and heating.

A grounded motor winding is indicated in much the same way as a shorted winding. Also, you may receive a shock on touching the motor frame. A positive check can be made by opening the grounded side of the line and testing with a test lamp or voltmeter from the motor frame to ground.

#### IF THE MOTOR RUNS HOT

Do not judge the temperature of a motor with the hand. A motor is not dangerously hot below about 180° F. Over heating results from:-

1. Overload - check load with an ammeter or wattmeter. Make sure there is no binding. Be sure the bearings are thoroughly oiled.

If the filters and ducts are not in place see "When Installing - 9".

2. Low voltage - check with voltmeter.  
(See "Motor Fails to Start")

#### MOTOR BURNED OUT

When replacing a burned out motor make very sure the cause of the burn out has been removed. Follow the suggestions given under "When Installing". Also, check the load with an ammeter or wattmeter.

More motor failures result from breakdown in the insulation of the windings than from any other cause. Most of these failures result from dampness absorbed by the insulation.

Century Motors are built to withstand reasonable moisture but no motor should be allowed to stand idle for long periods in very damp locations. Most basements in new buildings are very damp. Often water backs up in old basements during heavy rains.

It is recommended that motors not be installed in basements of new buildings until they are to be occupied and the unit put in service.

Fresh concrete and plaster in a new building closed up tightly sweats and creates excessive dampness.

If the motor has gotten wet or very damp it is recommended it be dried out by a competent service shop before the current is turned on.



RADIO INTERFERENCE

The CENTURY Capacitor Motors used on your blowers will not normally create radio interference except for a click when the circuits are closed.

Occasionally one of the condensers in the box attached to the top of the motor will work against the box due to vibration. This may create radio interference. Open up the box and move the condensers clear of the case. Replace the paper packing so the condensers cannot shift in the case.

Occasionally, especially in cold dry weather the belt generates static electricity which may result in making the radio noisy. This is usually due to paint, dirt or corrosion on the motor mounting or in the frame work of the blower casing, making a poor ground. It may be necessary to run a ground wire from a water pipe or other good ground directly to the motor frame where it may be fastened under one of the bolt heads.

A poor contact in a switch, fuse, fusetron or the control may create Radio Interference.



# CENTURY ELECTRIC COMPANY

MANUFACTURER OF



**MOTORS AND GENERATORS**

CABLE ADDRESS  
"ONEPHASE"

GENERAL OFFICE 1806 PINE STREET

SAINT LOUIS, MO.

Jan. 19, 1938

Sunbeam Air Conditioning Engineering School

Gentlemen:-

During the past few years the installation of household devices, and this includes both the fixed and movable devices which are usually found in the home, have increased to such a degree that it has become necessary for all of us to give a thought to rendering some kind of service to the owners of that equipment.

Century Electric Company does not contemplate, at least in the immediate future, setting up service stations or repair shops of its own at any point in the United States.

In order to facilitate the handling of complaints as well as repairs, both due to defects and of use of equipment, we have asked our representatives in the various centers to give us the names of repair shops who were in position to provide service of a definite nature and do it in a way that would be satisfactory to us and to the owner of the device. Our men have sent in a very large number of names with the complete history of the organization behind those shops. We have put our stamp of approval on a number of them, sent them back with contracts, and today we have contracts of more than forty authorized service stations who are prepared to give first class service on Century motors. In fact, they are prepared to give service on any kind of a motor - and do it promptly.

Your men are free to call on these service shops for help. They will determine, from the information supplied, whether the transaction is one for which the owner, or someone besides Century Electric Company should pay. If it is something for which the Century Electric Company should pay, the bill will be rendered to us. If not, the service man will tell who ever handled the transaction and will arrange to do the work for them if desired.

We are attaching a list of these service stations. We will endeavor to keep this list up-to-date by adding and subtracting names from time to time.



In the United States we also have twenty-six branch offices and three agencies with warehouse stocks of Century motors. While your motors are special and therefore not regularly carried in warehouse stocks, a standard stock motor may generally be substituted in an emergency. But we assume you will usually secure spare motors from your principals and have a few available in your own stock for emergencies - as is customary with customers using special equipment.

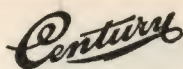
Our branch offices are primarily engaged in selling Century motors and, of course, solving those problems having to do with the selection and application of Century motors. While these offices are not service stations, they can and will service our motors when unusual conditions make that necessary. Century men are all technically trained, and practical field men so are prepared to solve any motor problem.

Then, in addition to these two groups, there is still another large group that is available, which we designate as service shops who are prepared to handle repairs on Century motors in a satisfactory way. We have not published, or broadcasted that list because we have no connection with them - we have no contracts, but are prepared to supply that list to those who are interested, so that if they should ever want to call in a repair man on an independent transaction, they will have the name of someone on whom they can rely and from whom they can feel that they will receive satisfactory results. We have supplied this list to the Fox Furnace Company.

This set up gives our customers facilities for service and help with their motor problems that would be impossible with any one organization.

CENTURY ELECTRIC COMPANY





## CENTURY AUTHORIZED SERVICE STATION

MANUAL O-505 PAGE 11

FEB. 15, 1938

DESTROY O-505 PAGE 11

DATED DEC. 27, 1937

CONNECTICUT	BRIDGEPORT	ELEC. MAIN. SERV. CO. INC.	679 WARREN ST.
	HARTFORD	SUPERIOR ELEC. MTR. INC.	54 ELM ST.
	STAMFORD	PALMER ELEC. MTR. REPR.	709 MAIN
	WATERBURY	ELEC. MTR. REPR. CO.	127 E. MAIN ST.
DC	WASHINGTON	CENTRAL ARMATURE WORKS, INC.	625-627 D. ST. N. W.
GEORGIA	ATLANTA	CLEVELAND ELEC. CO.	557 MARIETTA ST.
IDAHO	LEWISTON	H. B. BROWNFIELD	130 9TH STREET
ILLINOIS	CHICAGO	GODING ELECTRIC CO.	17 S. DESPLAINES ST.
INDIANA	ROCK FALLS	HILL'S ELECTRIC MOTOR SHOP	307 FIRST AVE.
	FORT WAYNE	WAYNE ELECTRIC CO.	213 W. BRECKINRIDGE ST.
IOWA	WATERLOO	ELEC. MTR. SERVICE CO.	311 E. 6TH ST.
	MASON CITY	ZACK BROS. ELEC. CO.	306 2ND ST. S. W.
	SIOUX CITY	PAUL ELECTRIC CO.	413 WATER ST.
KANSAS	HUTCHINSON	HILTON ELEC. CO.	122-26 E. SHERMAN
	TOPEKA	JONES ELECTRIC CO.	622 VAN BUREN ST.
KENTUCKY	PADUCAH	HARRIS ELECTRIC CO.	32ND & PARK AVE.
MARYLAND	BALTIMORE	JOHN R. LANGE	250 W. PRESTON AVE.
MASSACHUSETTS	CAMBRIDGE	CAMBRIDGE ELEC. MTR. SERV.	875 MAIN ST.
MICHIGAN	DETROIT	COMMONWEALTH SERVICE SALES CORP.	5919 COMMONWEALTH AVE.
	GRAND RAPIDS	KIRKHOFF ELECTRIC CO.	79 FRONT AVE. N. W.
MISSOURI	KANSAS CITY	SPARK ELECTRIC CO.	533 DELAWARE ST.
NEBRASKA	BEATRICE	SPRAGUE ELEC. SERV.	304-6 COURT ST.
	OMAHA	OMAHA ELECTRICAL WORKS	1214 HARNEY ST.
NEW JERSEY	JERSEY CITY	WILLIS MTR. & ARM. CO.	786 COMMUNIPAW AVE.
	NEW BRUNSWICK	E. FRALEY	28 COMMERCIAL AVE.
	NEWARK	PUBLIC ELECTRIC MAINTENANCE CO. INC.	285 SPRINGFIELD AVE.
NEW MEXICO	ALBUQUERQUE	ELECTRIC MOTOR CO.	510 E. CENTRAL AVE.
NEW YORK	ALBANY	ELEC. MTR. SALES & SERV.	39 HAMILTON ST.
	BROOKLYN	WENDEL ELEC. MCHY. CO.	191 GREENPOINT AVE.
	BUFFALO	WARDELL THURSTON ELEC. CO.	578 MICHIGAN AVE.
	LIBERTY	DICKS BATTERY & AUTO	397 N. MAIN ST.
	CORONA, L. I.	FRANK SCHNABEL	3715 103RD ST.
	POUGHKEEPSIE	GHEE BROTHERS	886 MAIN ST.
	SYRACUSE	ROGERS & HILTON, INC.	318-324 PEARL ST.
	ROCHESTER	T. H. GREEN ELEC. CO., INC.	31-37 N. WATER ST.
N. CAROLINA	CHARLOTTE	JONES ELECTRIC REPR. CO.	715 E. 7TH ST.
OHIO	CINCINNATI	BOSSETT-BURNS ELEC. CO.	1709 LOGAN ST.
	CLEVELAND	RESERVE ELEC. CO.	1737 E. 18TH ST.
	COLUMBUS	SACKETT ELEC. CO.	99 N. 4TH ST.
	DAYTON	DAYTON ELECTRIC SERV. CO.	24 N. PATTERSON BLVD.
OKLAHOMA	TULSA	J. W. DODGE ELECTRIC SUPPLY CO.	211 S. LANSING ST.
OREGON	PORTLAND	WALKER ELEC. WORKS	206 N. W. 10TH AVE.
PENNSYLVANIA	SHARPSBURG	GLOBE ELEC. REPR. CO.	40 N. MAIN ST.
	(PITTS.) PHILADELPHIA	MUELLER ELECTRIC CO.	216-18 N. 11TH ST.
SOUTH DAKOTA	SIOUX FALLS	SHAKETAD ELEC. MTR. WKS.	214 S. MAIN ST.
TENNESSEE	KNOXVILLE	TENN. ARM. & ELEC'L CO., INC.	416 W. JACKSON ST.
	NASHVILLE	TENN. ELEC. MTR. SERV.	408-10 COMMERCE ST.
TEXAS	CORPUS CHRISTI	BRADLEY MTR. & ARM. WKS.	1513 LEOPARD ST.
	EL PASO	SLAUGHTER ELEC. & MACHINE CO.	1409-11 TEXAS ST.
	HOUSTON	HOUSTON ARM. WKS.	2301 PRAIRIE AVE.
	SAN ANTONIO	SAN ANTONIO ARM. WKS.	451 N. FLORES
WASHINGTON	SEATTLE	FELLSTROM ELEC. CO.	2211 9TH AVE.
	SPOKANE	NIXON-KIMMEL CO.	167 S. WALL ST.
WISCONSIN	GREEN BAY	BEEMSTER ELEC. CO.	127 N. BROADWAY
	MILWAUKEE	KOENIG ELEC. CO.	1119 N. 4TH ST.

SEC. 51

CENTURY ELECTRIC COMPANY, ST. LOUIS, MO.





## SALES OFFICES AND WAREHOUSES

## UNITED STATES

CENTURY ELECTRIC CO. MAINTAINS SALES OFFICES AND WAREHOUSES IN VARIOUS CITIES IN THE UNITED STATES, WHERE COMPLETE INFORMATION ON CENTURY PRODUCTS IS AVAILABLE AND WHERE ADEQUATE STOCKS OF MOTORS TO MEET THE PARTICULAR REQUIREMENTS OF THE TERRITORY ARE ALWAYS AVAILABLE. ADDRESS CENTURY ELECTRIC CO. AT THE POINT MOST CONVENIENT TO YOU.

CITY	ADDRESS	TELEPHONE
ATLANTA, GA.....	ROOM 545 HURT BLDG., 45 EDGEWOOD AVE., S. E. ....	WALNUT 0070
*BALTIMORE, MD.....	17 GUILFORD AVE. (ADDRESS CORRESPONDENCE TO PHILADELPHIA OFFICE).....	PLAZA 8565
BOSTON, MASS.....	ROOM 532 RICE BLDG., 10 HIGH STREET.....	LIBERTY 3470
*BUFFALO, N. Y.....	(ADDRESS CORRESPONDENCE TO ROCHESTER OFFICE).....	UNIVERSITY 4900
CHARLOTTE, N. CAR.....	1000 W. MOREHEAD ST. (ADDRESS CORRESPONDENCE TO ATLANTA OFFICE).....	3-7191
CHICAGO, ILL.....	ROOM 325 WEST TOWN SAFE DEPOSIT CO. BLDG., 2400 W. MADISON ST.....	MONROE 2600
CINCINNATI, OHIO.....	ROOM 909 AMERICAN BLDG., PARKWAY AND WALNUT ST.....	PARKWAY 6625
CLEVELAND, OHIO.....	ROOM 823 HANNA BLDG., EAST 14TH ST. AND EUCLID AVE.....	CHERRY 5412-5413
DALLAS, TEXAS.....	ROOM 514 MERCANTILE BLDG., 810 MAIN ST.....	2-4616
DAVENPORT, IOWA.....	ROOMS 911-912 KAHL BLDG., 326 W. 3RD ST.....	2-4436
DENVER, COLO.....	1700 SIXTEENTH ST.....	MAIN 1281
DETROIT, MICH.....	ROOM 1322 DIME BANK BLDG., 719 GRISWOLD ST.....	CADILLAC 0260-0261
HOUSTON, TEXAS.....	1 MAIN ST. (ADDRESS CORRESPONDENCE TO DALLAS OFFICE).....	CAPITAL 5891
*INDIANAPOLIS, IND.....	221 W. GEORGIA ST. (ADDRESS CORRESPONDENCE TO CINCINNATI OFFICE).....	LINCOLN 5244
*KALAMAZOO, MICH.....	2517 OUTLOOK ST. (ADDRESS CORRESPONDENCE TO DETROIT OFFICE).....	7707
KANSAS CITY, MO.....	ROOM 512 PICKWICK BLDG., 903 MCGEE ST.....	VICTOR 2672
LOS ANGELES, CALIF.....	ROOM 310, 1855 INDUSTRIAL ST.....	TRINITY 8526
MILWAUKEE, WIS.....	126 N. JEFFERSON ST. (ADDRESS CORRESPONDENCE TO CHICAGO OFFICE).....	MARQUETTE 1775
MINNEAPOLIS, MINN.....	ROOM 501 ESSEX BLDG., NICOLLET AT 10TH ST.....	GENEVA 6032
NEW ORLEANS, LA.....	*811 ST. CHARLES ST.....	*RAYMOND 7247-7248
NEW YORK, N. Y.....	30 VESEY ST.....	*CORTLANDT 7-5510
OMAHA, NEB.....	804 S. 16TH ST. (ADDRESS CORRESPONDENCE TO KANSAS CITY OFFICE).....	ATLANTIC 2700
PHILADELPHIA, PA.....	ROOM 914 OTIS BLDG., 112 S. 16TH ST.....	{ RACE 5039 RITTENHOUSE 8420-8421
PITTSBURGH, PA.....	ROOM 513 BESSEMER BLDG., 106 SIXTH ST.....	ATLANTA 3129
ROCHESTER, N. Y.....	ROOM 417 TAYLOR BLDG., 328 MAIN STREET EAST .....	MAIN 3705
ST. LOUIS, MO.....	1806 PINE ST.....	CENTRAL 4920
SALT LAKE CITY, UTAH.....	41 POST OFFICE PLACE.....	*WASATCH 6808
SAN FRANCISCO, CALIF.....	ROOM 621 RIALTO BLDG., MISSION AND NEW MONTGOMERY STS.....	SUTTER 2070
SEATTLE, WASH.....	1518 1ST AVE. SOUTH .....	MAIN 3868
SPOKANE, WASH.....	ROOM 428 HUTTON BLDG., SOUTH 9 WASHINGTON ST.....	MAIN 5431
*YORK, PA.....	17 S. ROCKBURN ST. (ADDRESS CORRESPONDENCE TO PHILADELPHIA OFFICE)....	56709

\* RESIDENT SALES ENGINEERS.

## CANADA

CENTURY MOTORS ARE IN STOCK AT CONVENIENT POINTS IN CANADA. DELIVERED PRICES FROM THESE CANADIAN STOCK POINTS WILL BE QUOTED WHEN REQUESTED. ADDRESS YOUR U. S. SALES OFFICE WHICH WILL SECURE THE QUOTATION FOR YOU.

CENTURY STOCK POINTS IN CANADA ARE:

MONTREAL, QUE.  
TORONTO, ONT.  
VANCOUVER, B. C.  
WINNIPEG, MAN.

## OVERSEAS

IN OVER 70 CITIES IN ALMOST EVERY COUNTRY IN THE WORLD, WHERE ELECTRIC SERVICE IS AVAILABLE, CENTURY AGENTS, WITH FULL STOCKS OF MOTORS AND COMPLETE INFORMATION AS TO THE NEEDS IN THEIR LOCALITIES, MAKES COMPLETE THE FACILITIES OF CENTURY ELECTRIC CO. TO HANDLE YOUR ELECTRIC POWER REQUIREMENTS. THE EXPORT DEPARTMENT OF CENTURY ELECTRIC CO. AT ST. LOUIS WILL GLADLY COOPERATE WITH YOU IN YOUR EXPORT REQUIREMENTS.

\*CHANGES SINCE LAST ISSUE

SEC. 51, AR. CS, CE, P, EX, GD, LM, REP, SMG, TP, T.

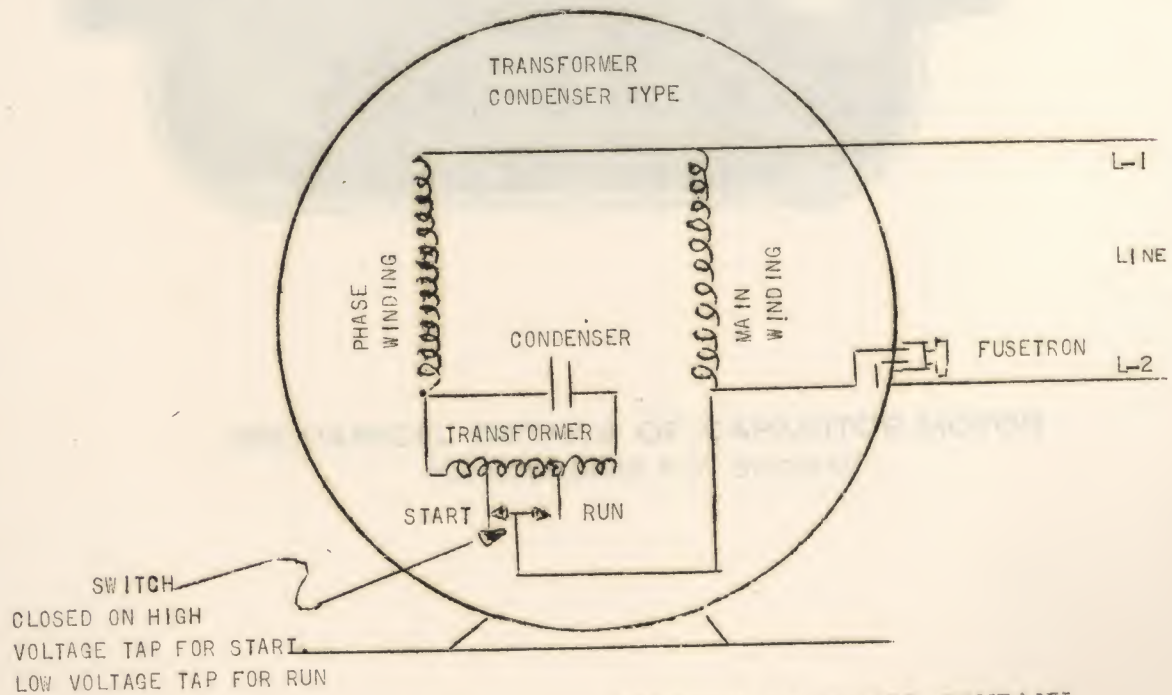
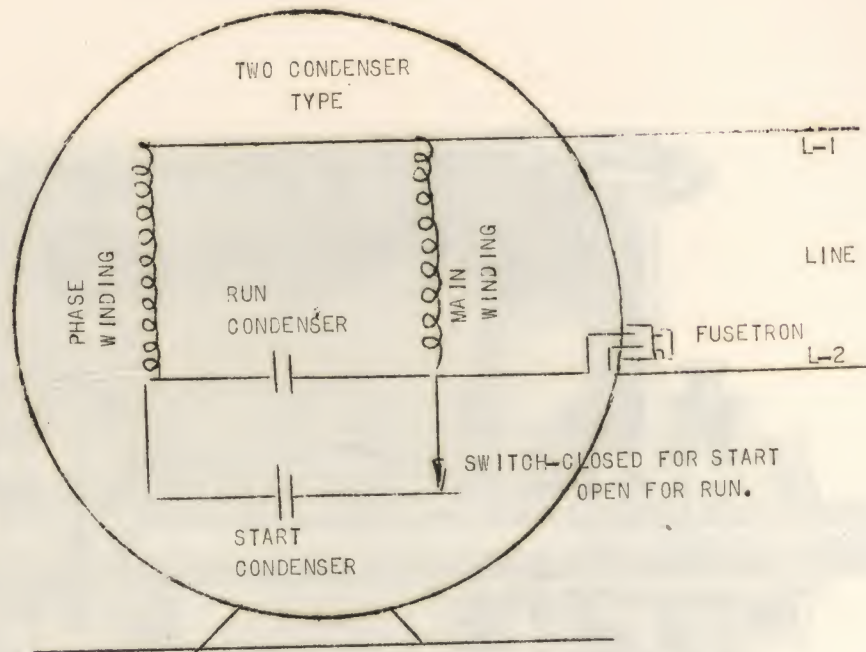
CENTURY ELECTRIC CO., ST. LOUIS, MO.

PRINTED IN U. S. A.



# SCHEMATIC WIRING DIAGRAM

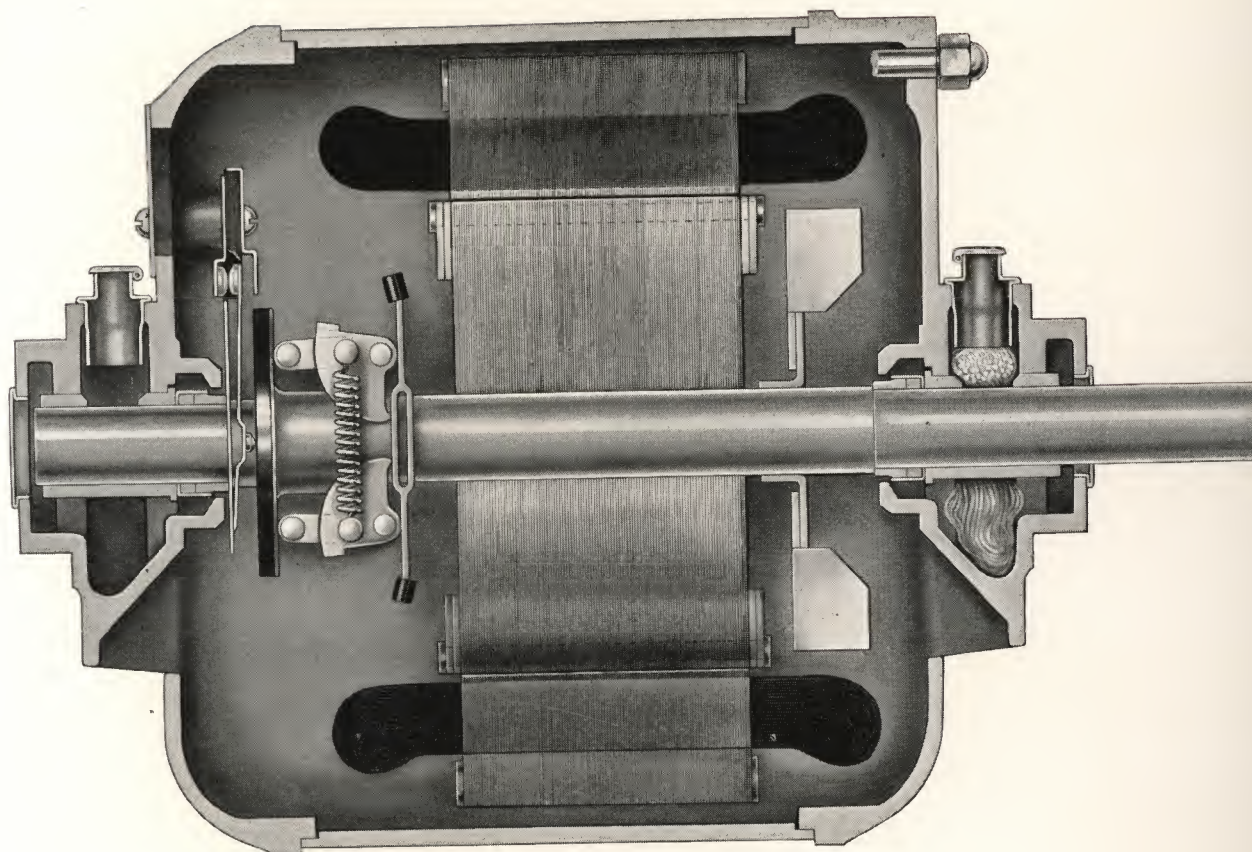
## TYPE CPX CAPACITOR START - CAPACITOR RUN



CENTURY ELECTRIC COMPANY  
St. Louis, Mo.



*Century*



MECHANICAL DETAILS OF CAPACITOR MOTOR  
(CONDENSERS NOT SHOWN)

CENTURY ELECTRIC COMPANY  
SAINT LOUIS, MO.